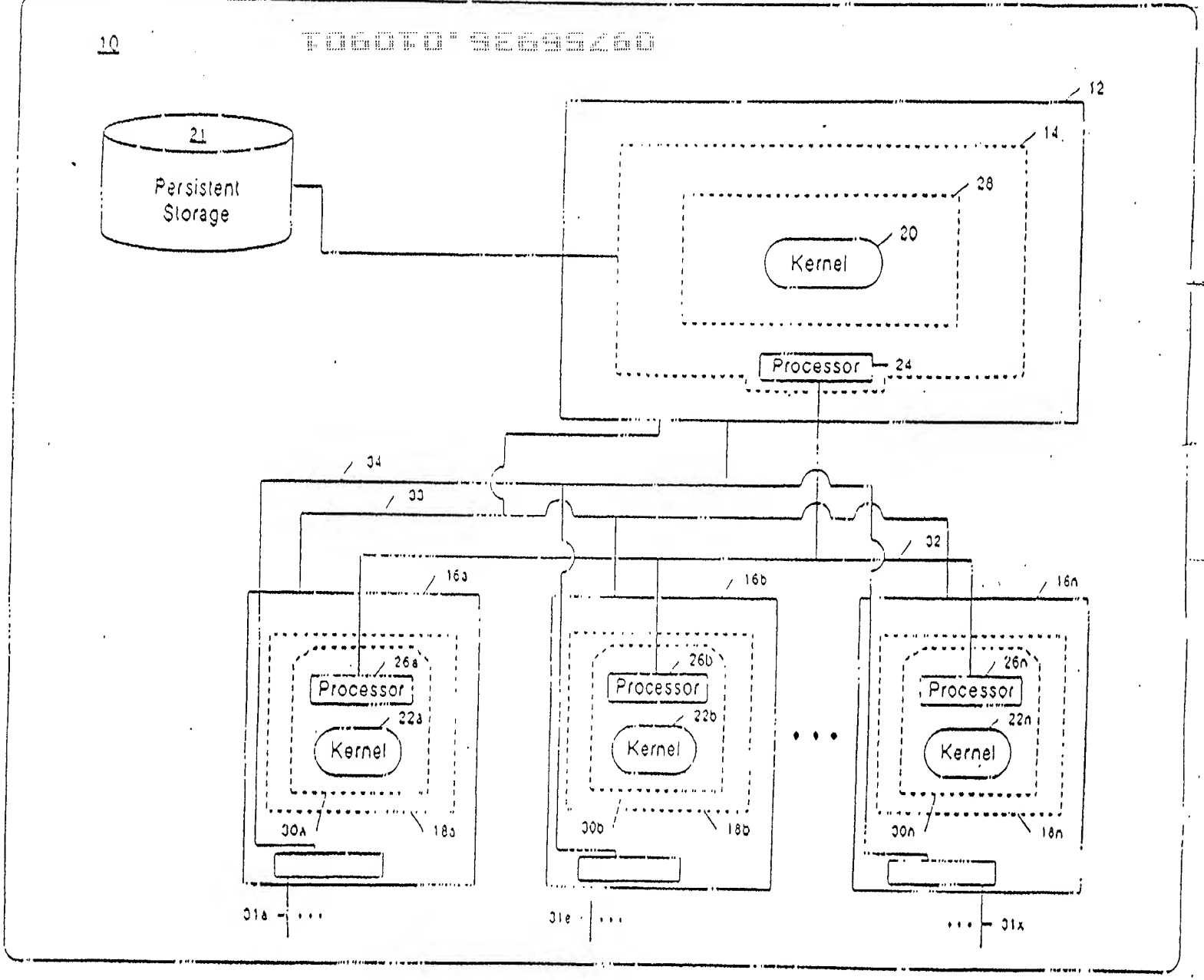
FIG. 1


10
12
14
28
20
Kernel
Processor
24
21
Persistent Storage
34
33
32
16a
16b
16n
26a
Processor
22a
Kernel
30A
18a
26b
Processor
22b
Kernel
30b
18b
26n
Processor
22n
Kernel
30n
18n
31a
31e
31x

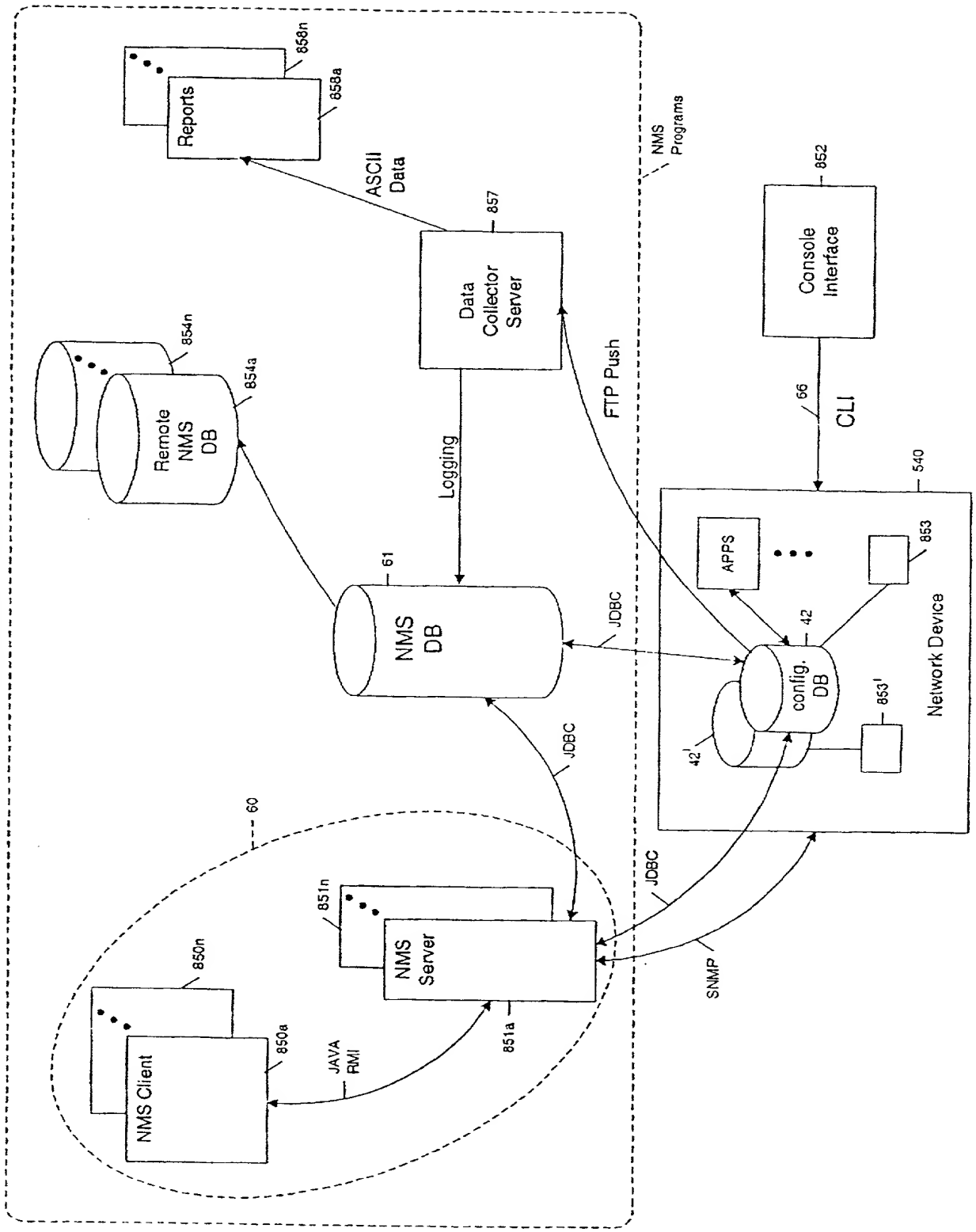

NMS Programs
Reports
858n
858a
ASCII Data
Data Collector Server
857
Console Interface
852
Remote NMS DB
854n
854a
Logging
FTP Push
66
CLI
540
APPS
853
NMS DB
61
JDBC
42
config. DB
42'
853'
Network Device
60
851n
NMS Server
851a
850n
NMS Client
850a
JAVA RMI
SNMP

Fig. 2a

Fig. 2b

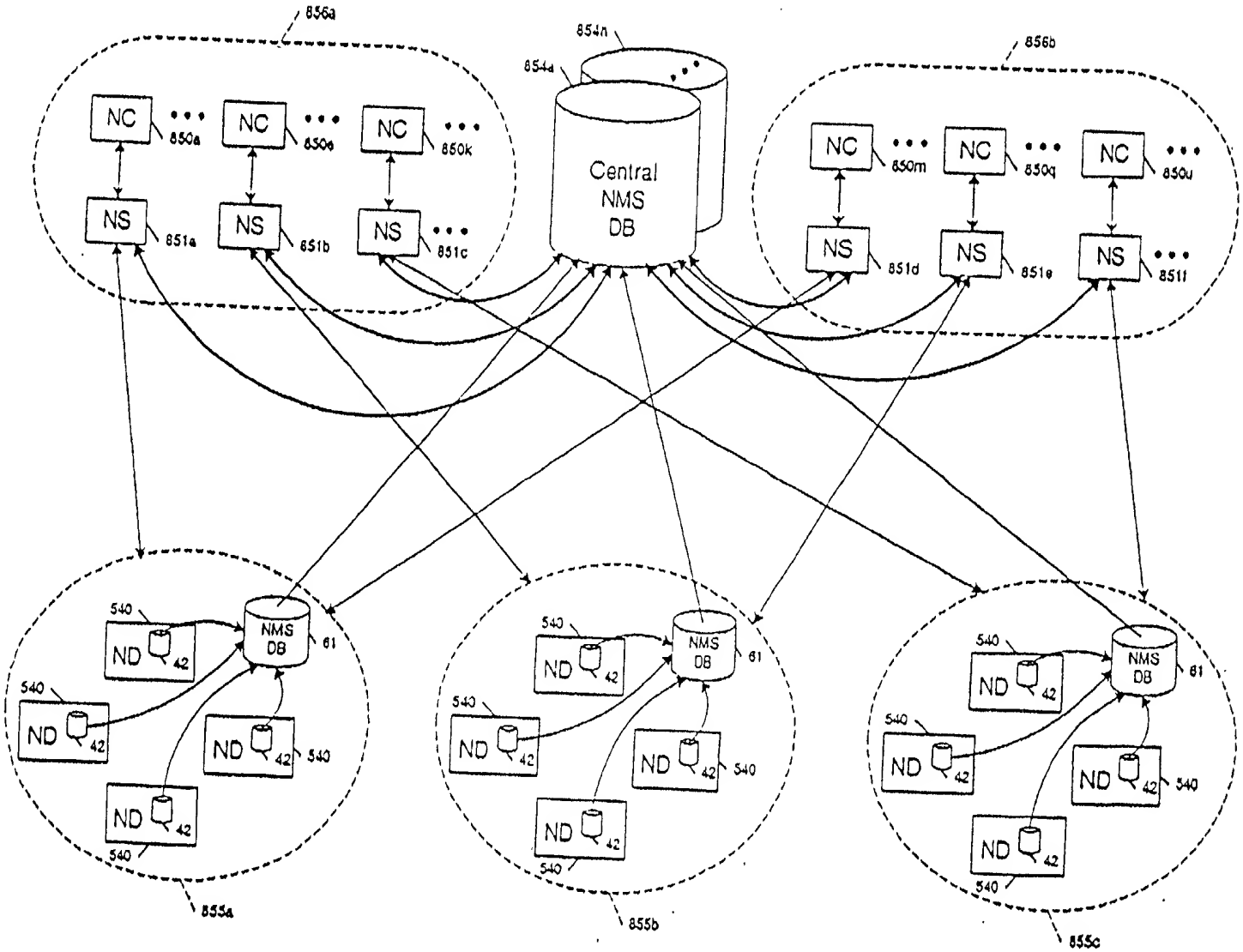

856a
854n
854a
856b
NC
850a
NC
850g
NC
850k
Central
NMS
DB
NC
850m
NC
850q
NC
850u
NS
851a
NS
851b
NS
851c
NS
851d
NS
851e
NS
851f
540
ND
42
NMS
DB
61
855a
855b
855c

FIG. 3a

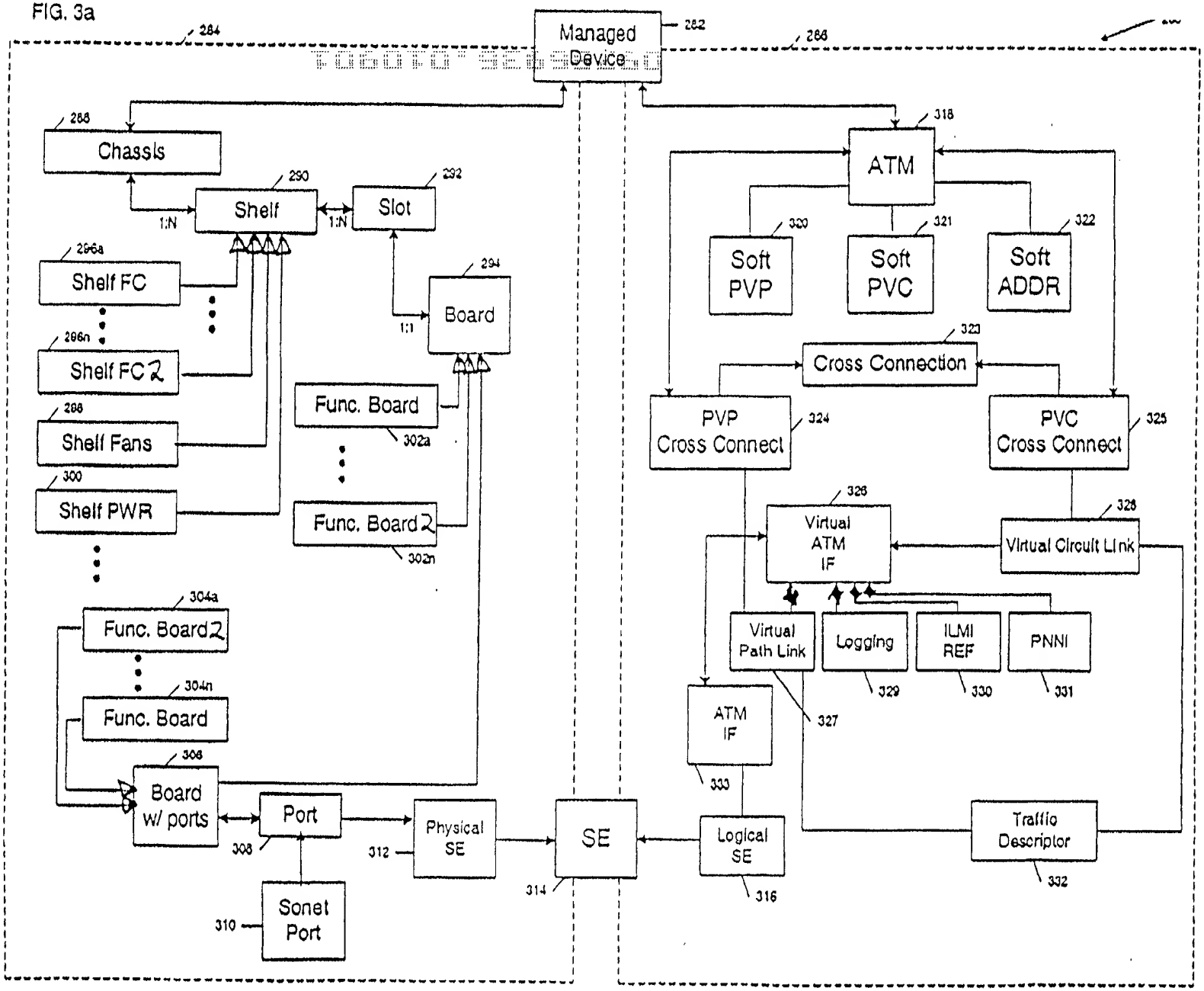
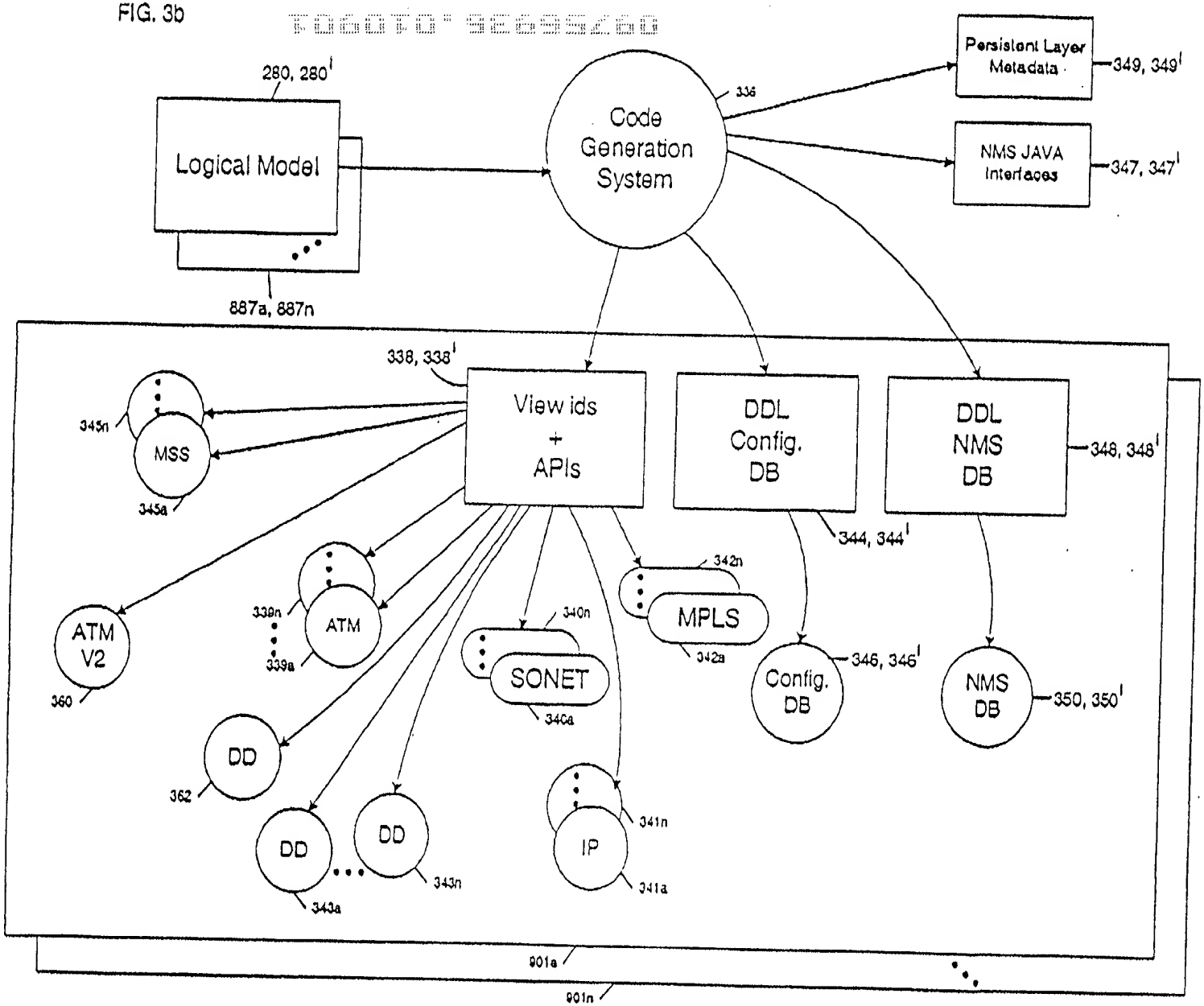

Managed Device
282
284
286
288
Chassis
290
Shelf
292
Slot
1:N
1:N
1:1
294
Board
296a
Shelf FC
296n
Shelf FC2
298
Shelf Fans
300
Shelf PWR
Func. Board
302a
Func. Board2
302n
304a
Func. Board2
304n
Func. Board
306
Board w/ ports
Port
308
310
Sonet Port
312
Physical SE
314
SE
316
Logical SE
318
ATM
320
Soft PVP
321
Soft PVC
322
Soft ADDR
323
Cross Connection
324
PVP Cross Connect
325
PVC Cross Connect
326
Virtual ATM IF
328
Virtual Circuit Link
Virtual Path Link
327
Logging
329
ILMI REF
330
PNNI
331
ATM IF
333
Traffic Descriptor
332

FIG. 3b


280, 280'
Logical Model
887a, 887n
Code Generation System
336
Persistent Layer Metadata
349, 349'
NMS JAVA Interfaces
347, 347'
338, 338'
View ids + APIs
DDL Config. DB
DDL NMS DB
348, 348'
344, 344'
345n
MSS
345a
ATM V2
360
339n
ATM
339a
340n
SONET
340a
342n
MPLS
342a
346, 346'
Config. DB
NMS DB
350, 350'
DD
362
DD
343a
DD
343n
341n
IP
341a
901a
901n

TOBTO 9E695260

FIG. 3c

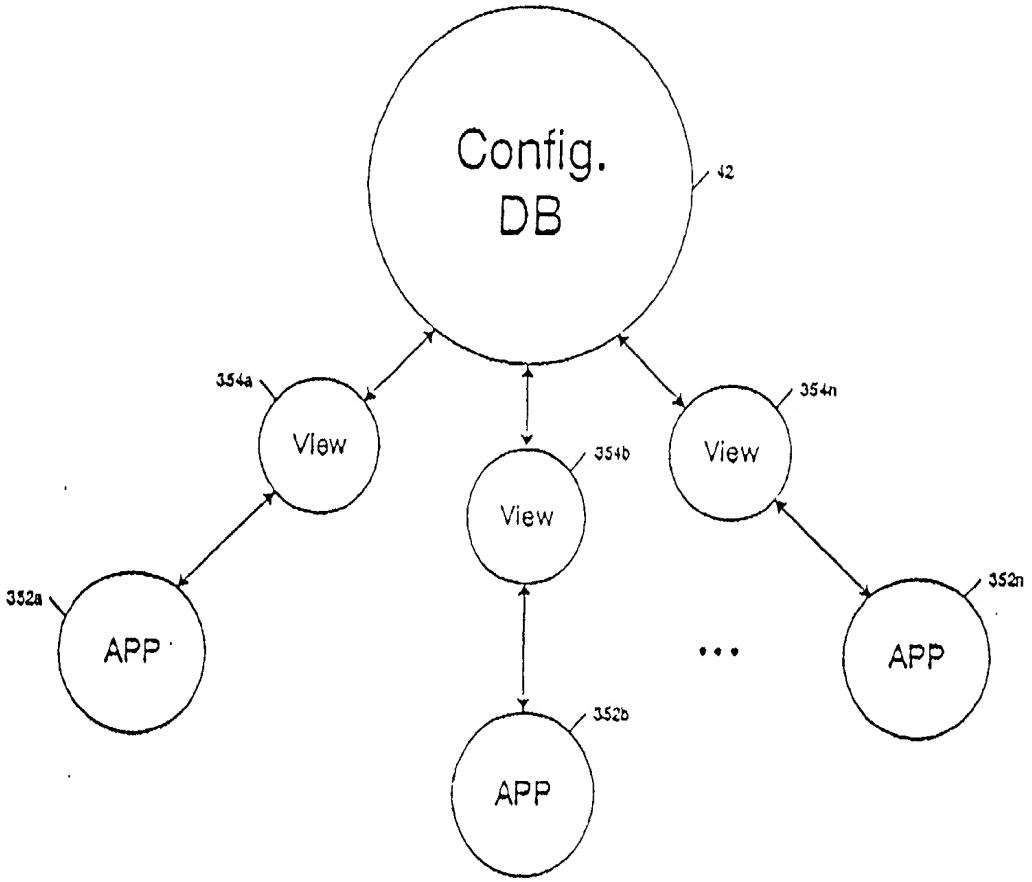


Fig. 3d

Build SONET Application

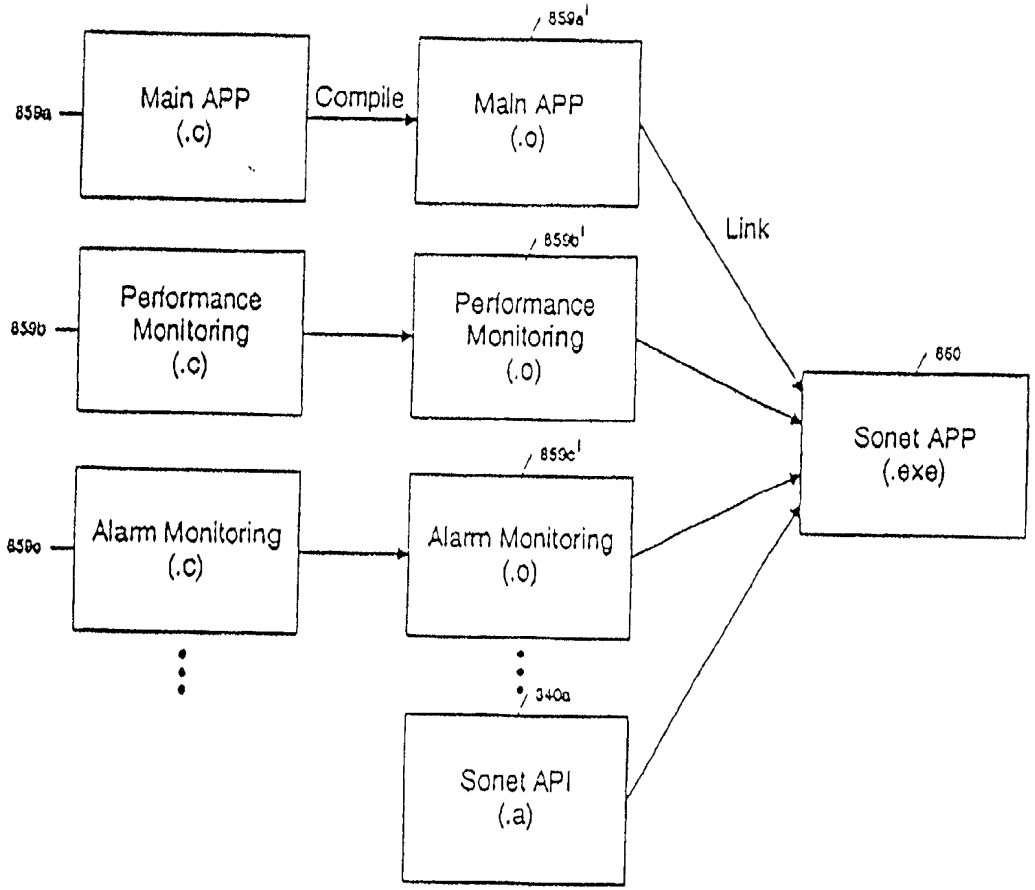
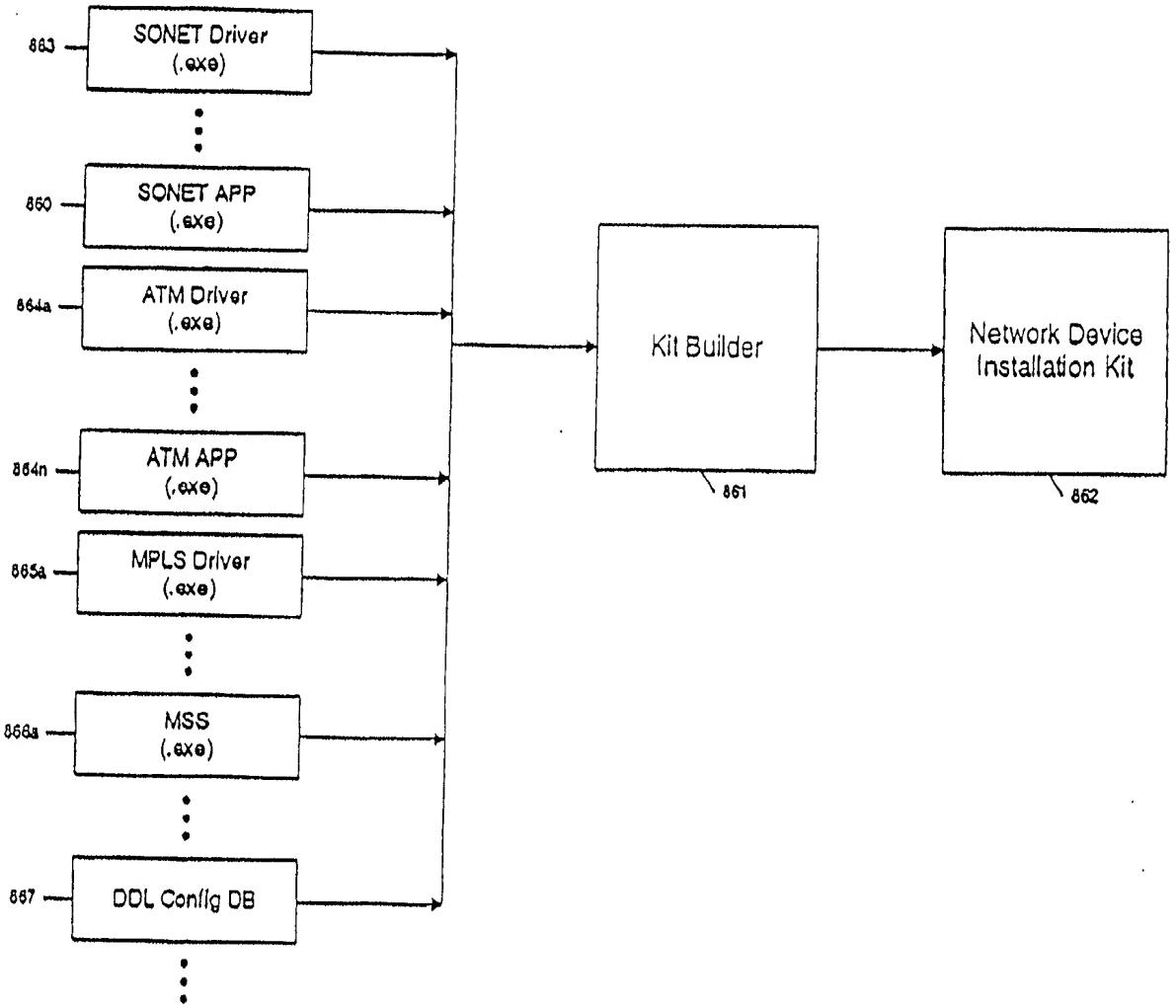


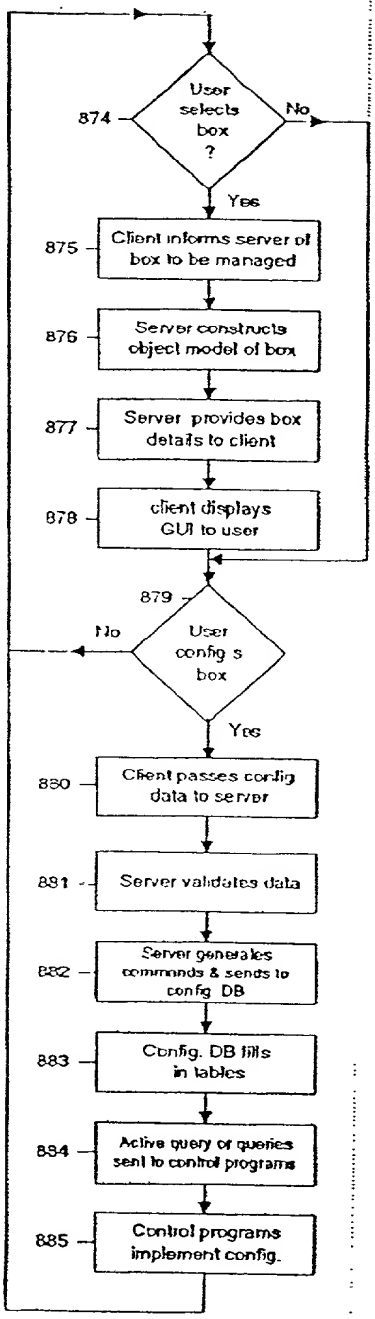
Fig. 8e


863
SONET Driver
(.exe)
860
SONET APP
(.exe)
864a
ATM Driver
(.exe)
864n
ATM APP
(.exe)
865a
MPLS Driver
(.exe)
866a
MSS
(.exe)
867
DDL Config DB
Kit Builder
861
Network Device
Installation Kit
862

Sent By: Equipe Communications; - 781 795 2031; Jul-21-00 3:34PM; Page 2/2

Fig. 3F

Fig. 3g


874
User selects box ?
No
Yes
875
Client informs server of box to be managed
876
Server constructs object model of box
877
Server provides box details to client
878
client displays GUI to user
879
User config s box
No
Yes
880
Client passes config data to server
881
Server validates data
882
Server generates commands & sends to config DB
883
Config. DB fills in tables
884
Active query or queries sent to control programs
885
Control programs implement config.

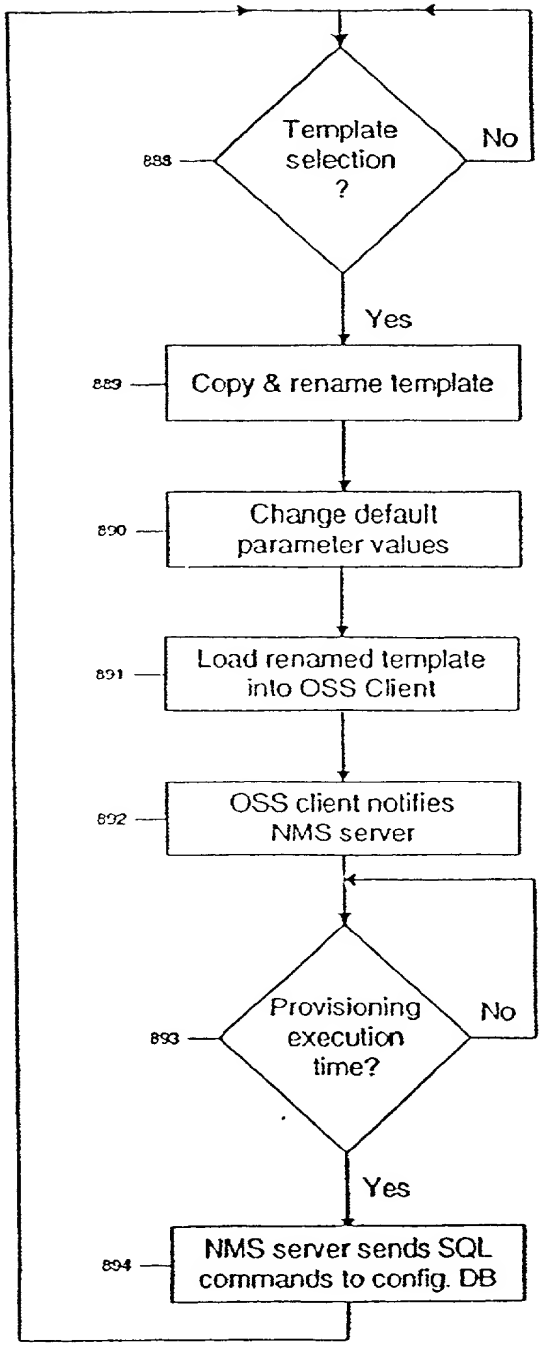


Fig. 3h

Sent By: Equipe Communications; 781 795 2031; Jul-21-00 2:44PM; Page 11

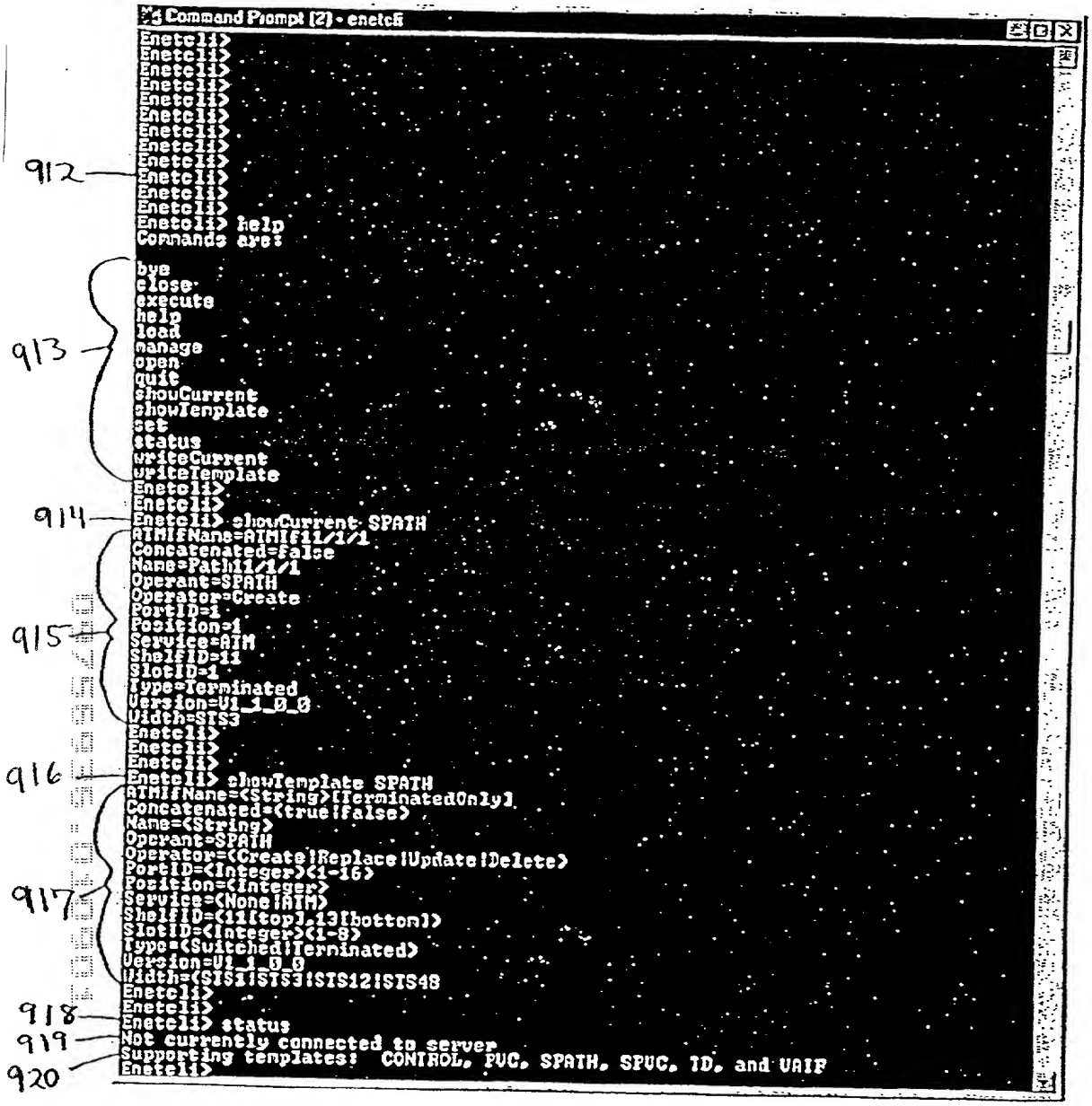

3 Command Prompt (2) - enetcli
Enetcli>
Enetcli> help
Commands are:
bye
close
execute
help
load
manage
open
quit
showCurrent
showTemplate
set
status
writeCurrent
writeTemplate
Enetcli>
Enetcli> showCurrent SPATH
ATMIfName=ATMIf11/1/1
Concatenated=False
Name=Path11/1/1
Operant=SPATH
Operator=Create
PortID=1
Position=1
Service=ATM
ShelfID=11
SlotID=1
Type=Terminated
Version=V1_1_0_0
Width=STS3
Enetcli>
Enetcli>
Enetcli> showTemplate SPATH
ATMIfName=<String>[TerminatedOnly]
Concatenated=<true|false>
Name=<String>
Operant=SPATH
Operator=<Create|Replace|Update|Delete>
PortID=<Integer>(1-16)
Position=<Integer>
Service=<None|ATM>
ShelfID=<11[top],13[bottom]>
SlotID=<Integer>(1-8)
Type=<Switched|Terminated>
Version=V1_1_0_0
Width=<STS1|STS3|STS12|STS48
Enetcli>
Enetcli> status
Not currently connected to server
Supporting templates: CONTROL, PVC, SPATH, SPVC, ID, and VAIF
Enetcli>
912
913
914
915
916
917
918
919
920

Fig. 3i

Fig. 3j

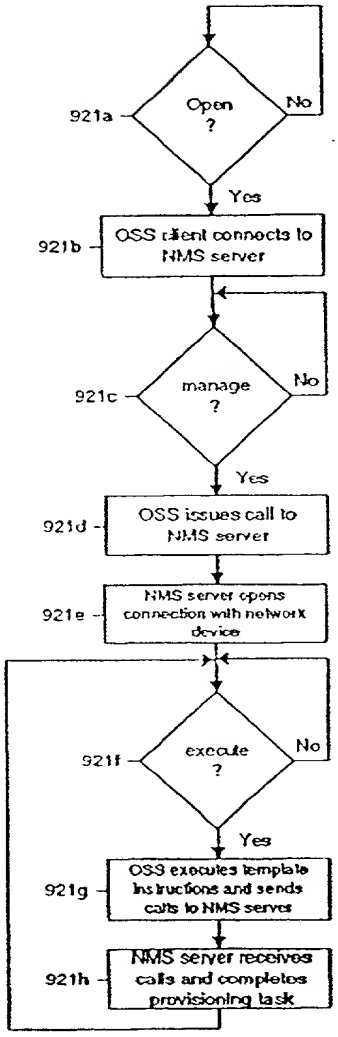

921a
Open ?
No
Yes
921b
OSS client connects to NMS server
921c
manage ?
No
Yes
921d
OSS issues call to NMS server
921e
NMS server opens connection with network device
921f
execute ?
No
Yes
921g
OSS executes template instructions and sends calls to NMS server
921h
NMS server receives calls and completes provisioning task

Fig 3K

Command Prompt (2) - eneteli
Eneteli>
Eneteli> showCurrent CONTROL
Input=Q:\nms\con\equipecon\nms\utils\eneteli
Interactive=false
Operant=CONTROL
Operator=Manage
Output=Q:\nms\con\equipecon\nms\utils\eneteli
Password=None
System=192.168.9.202
User=None
Version=V1_1_0_0
Server=localhost
Eneteli>
922
923d
923f
923c
923e
923b
923g
923a

Fig. 3L

924 BATCH.

Operant=BATCH
Operator=Execute
Version=V1_1_0_0
924a—Task1=execute-SPATH
924b—Task2=execute-PVC
924c—Task3=execute-SPVC
924d—Task4=load-SPVC-spvc1
924e—Task5=execute-SPVC
924f—Task6=load-SPVC-spvc2
924g—Task7=execute-SPVC
.
.
.
924g—Task50=set-SPATH-PortID-3
924h—Task51=execute-SPATH
924i—Task52=set-SPATH-SlotID-2
924j—Task53=execute-SPATH

925

Operant=BATCH
Operator=Execute
Version=V1_1_0_0
925a Task1=execute-CONTROL
925b Task2=execute-SPATH
925c Task3=set-SPATH-PortID-3
925d Task4=execute-SPATH
.
.
.
925e Task61=set-CONTROL-System-192.168.9.201
925f Task62=execute-CONTROL
925g Task63=execute-SPATH
.
.
.
925h Task108=close
925i Task109=set-CONTROL-Server-Server1
925j Task110=set-CONTROL-System-192.168.8.200
925k Task111=execute-CONTROL
925l Task112=execute-SPATH
.
.
.

Fig. 3M

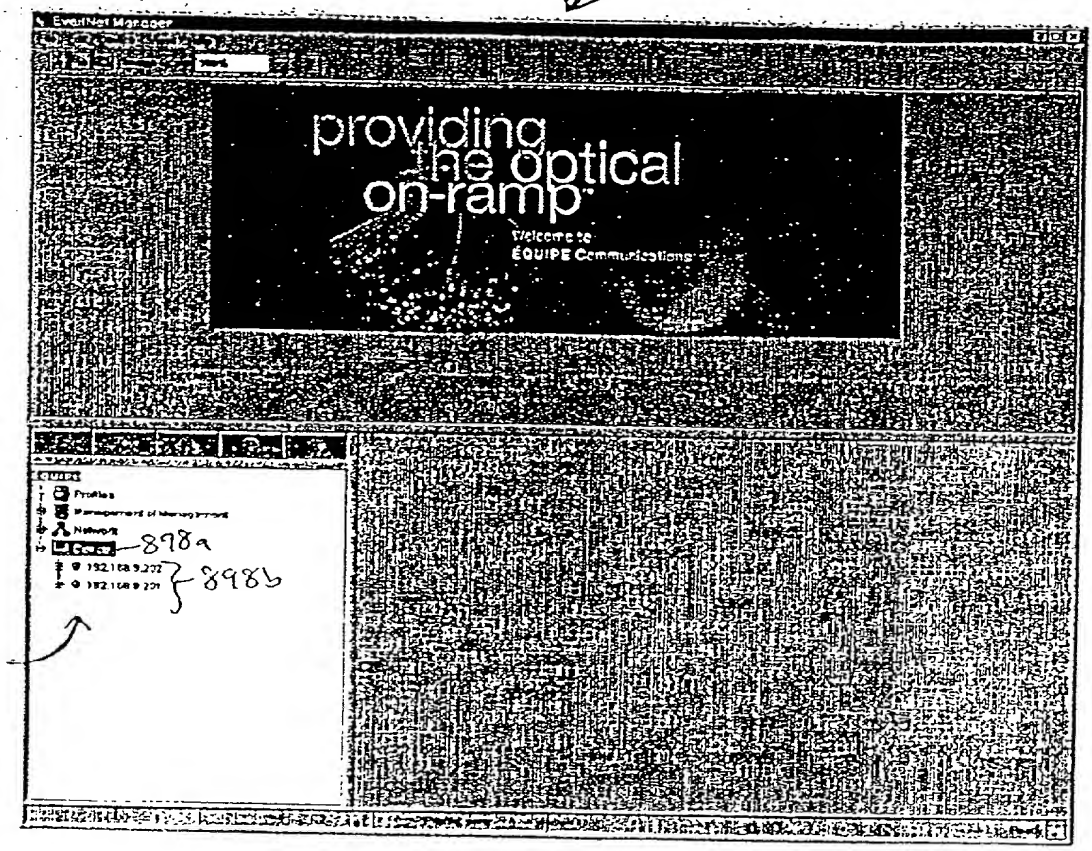

895
providing
the optical
on-ramp
Welcome to
EQUIPE Communications
898a
898b
898

Fig. 4a

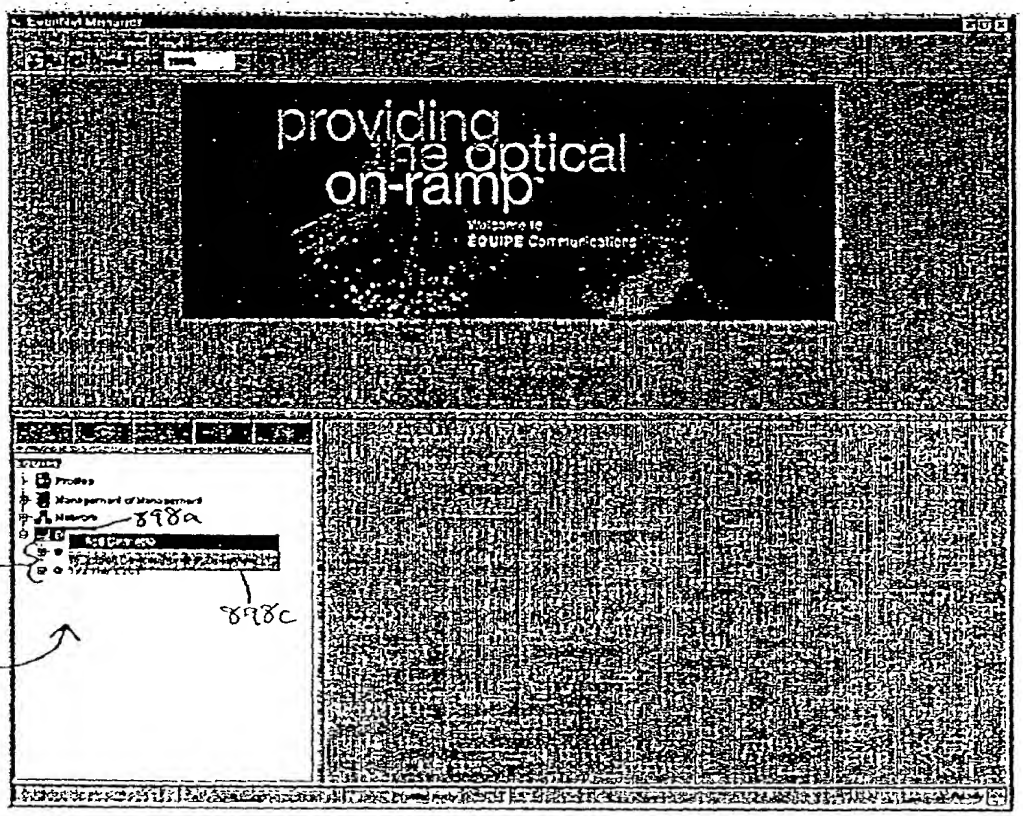


Fig. 4b

Fig. 4c

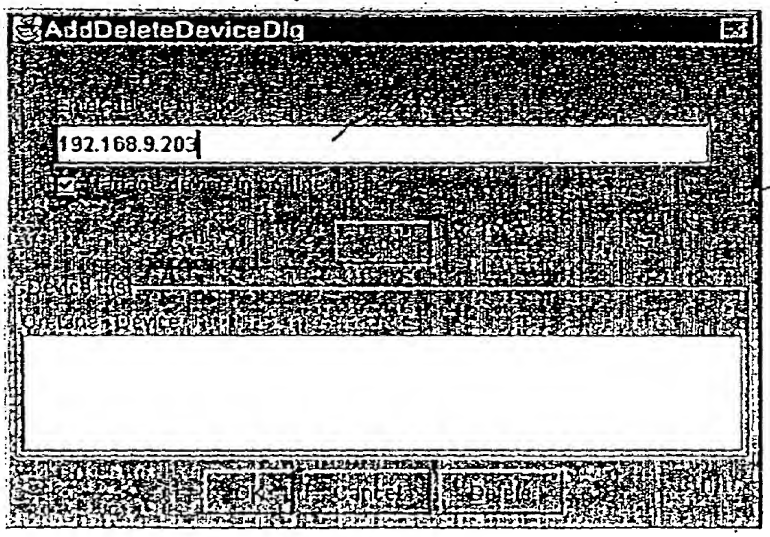
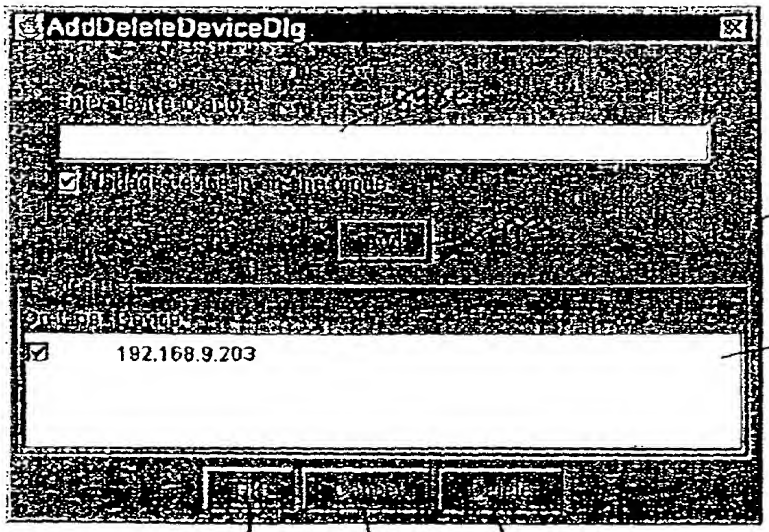

AddDeleteDeviceDlg
192.168.9.203
898d

Fig. 4d


AddDeleteDeviceDlg
898d
192.168.9.203
898g
898j
898i
898h

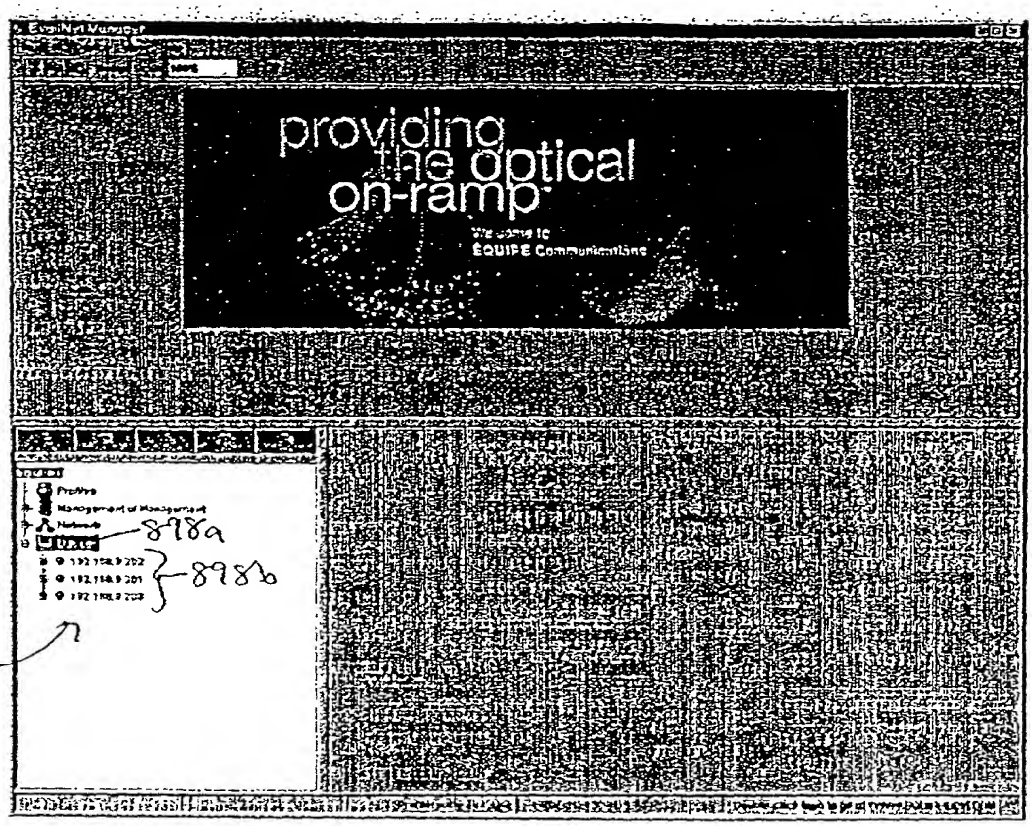

895
providing
the optical
on-ramp
EQUIPE Communications
898a
898b
898

Fig. 4e

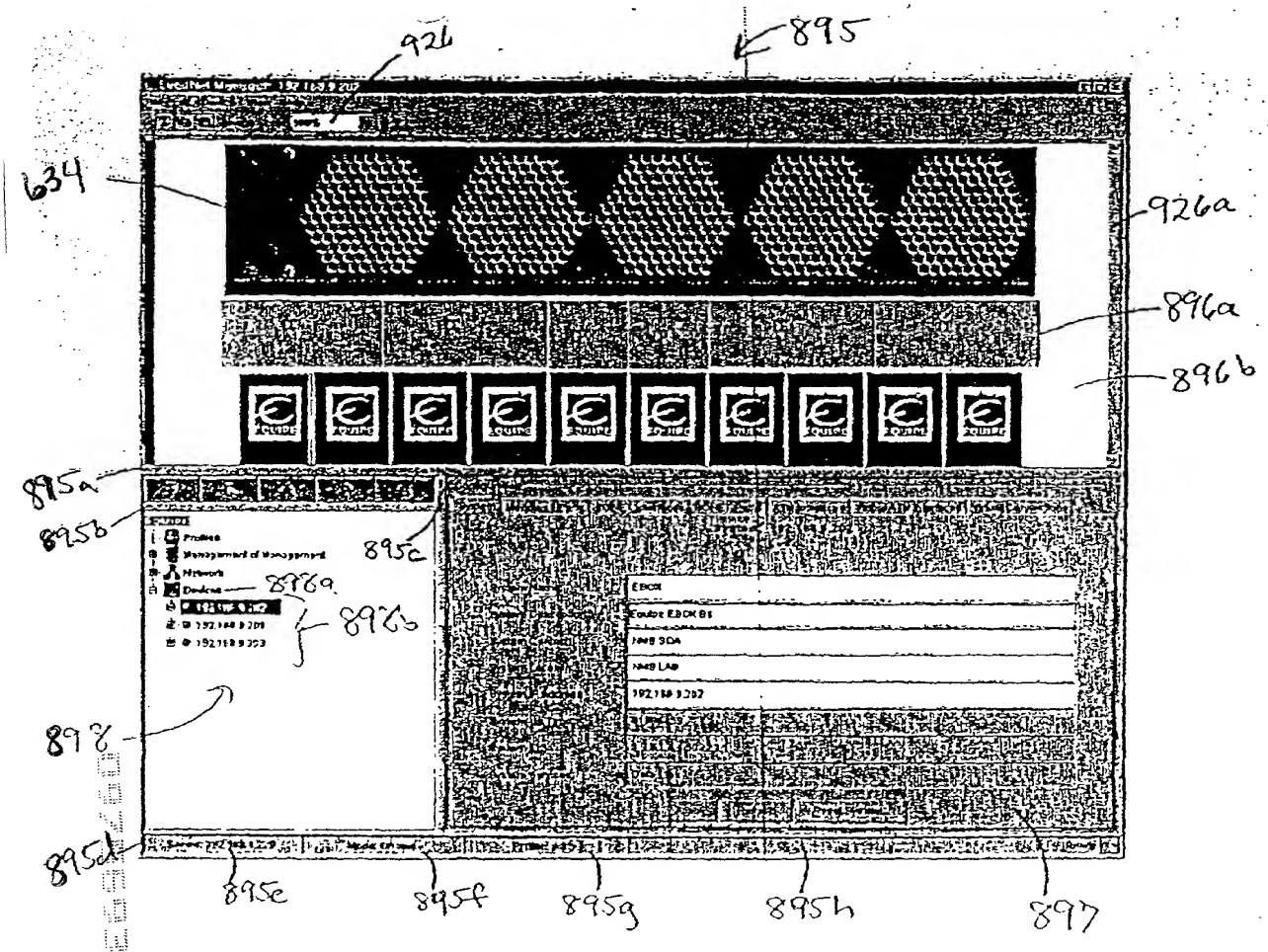

926
895
634
926a
896a
896b
895a
895b
895c
896a
896b
898
895d
895e
895f
895g
895h
897

Fig. 4f

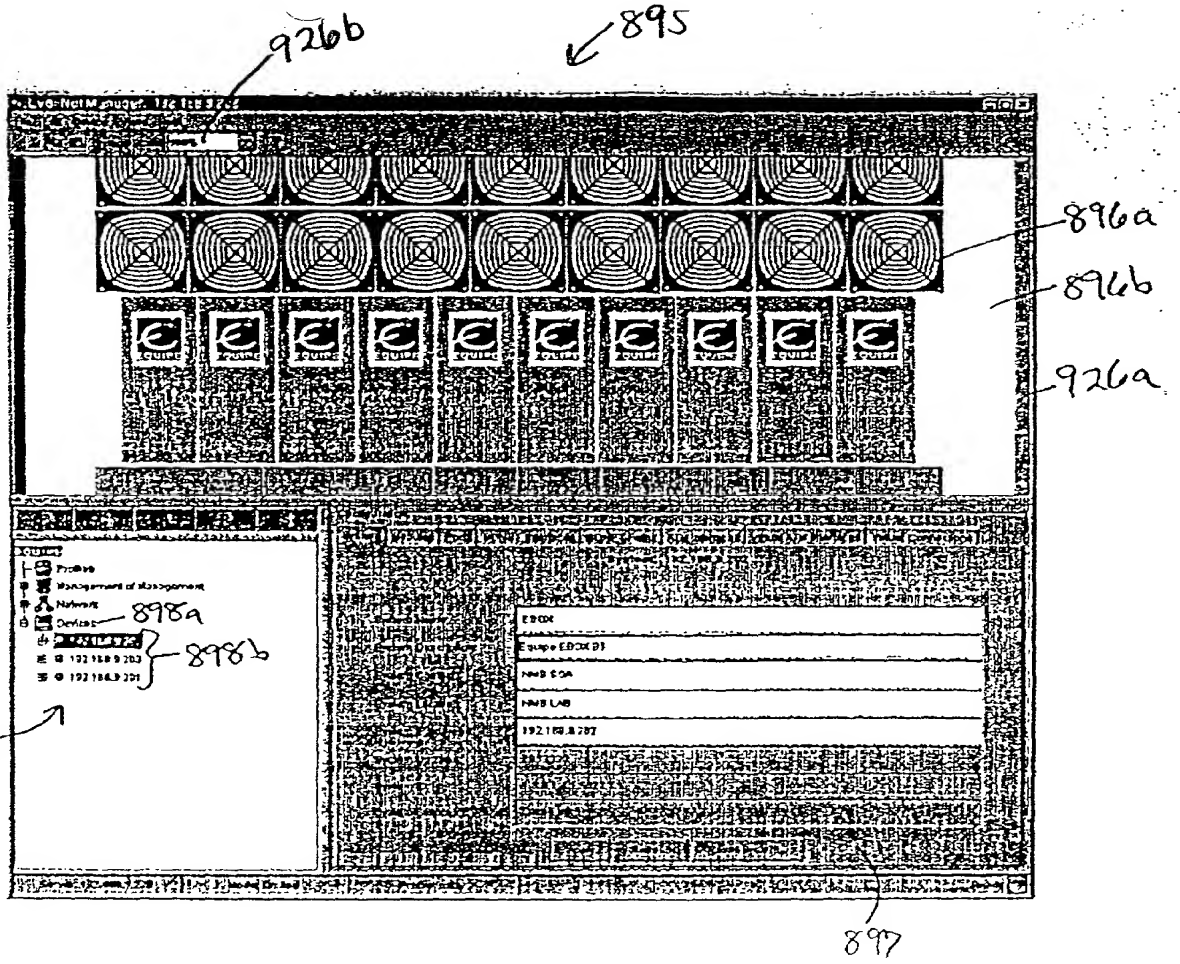


Fig. 4g

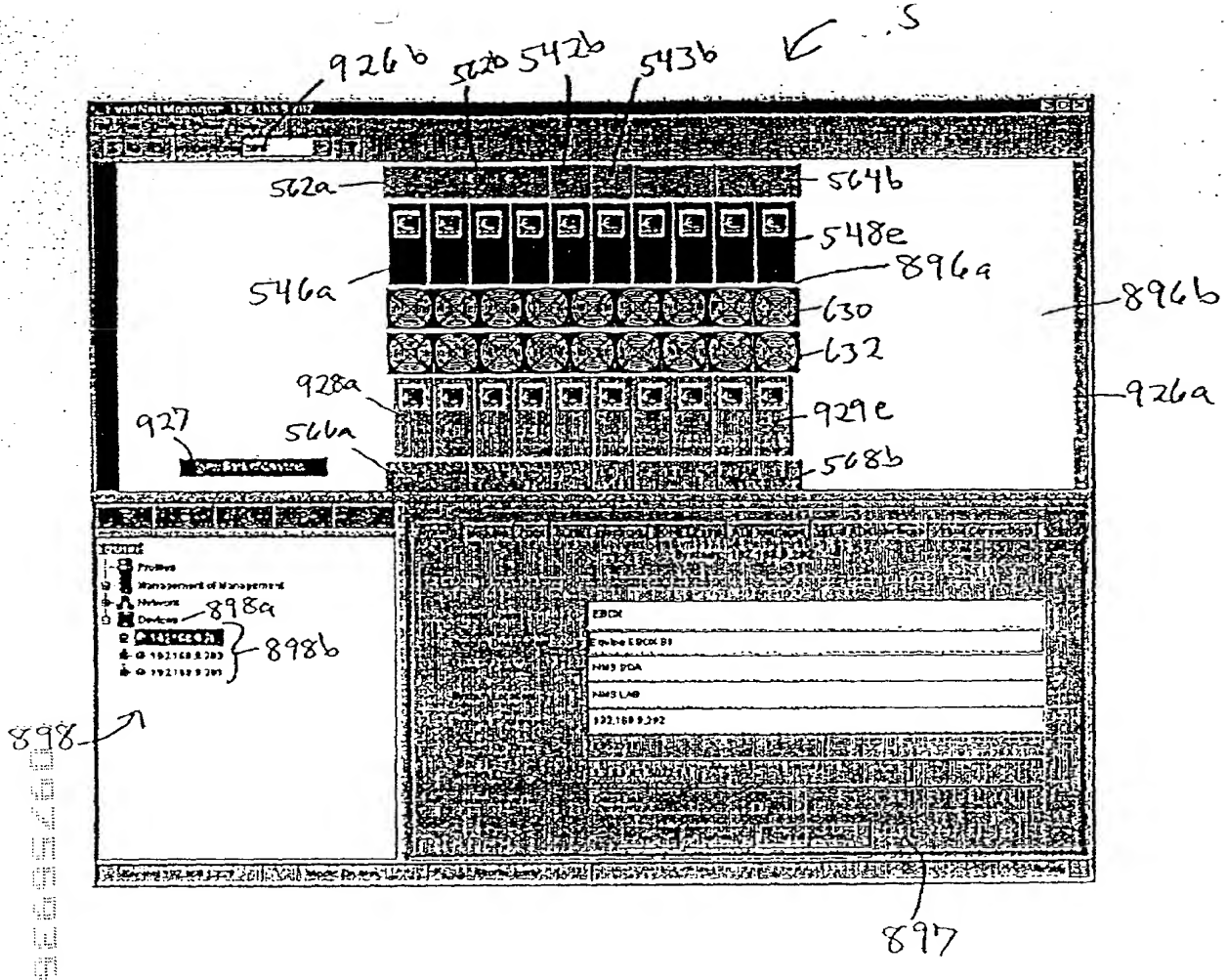

926b
520
542b
543b
562a
564b
548e
546a
896a
896b
630
632
928a
929e
926a
927
566a
568b
898a
898b
898
897

Fig. 4h

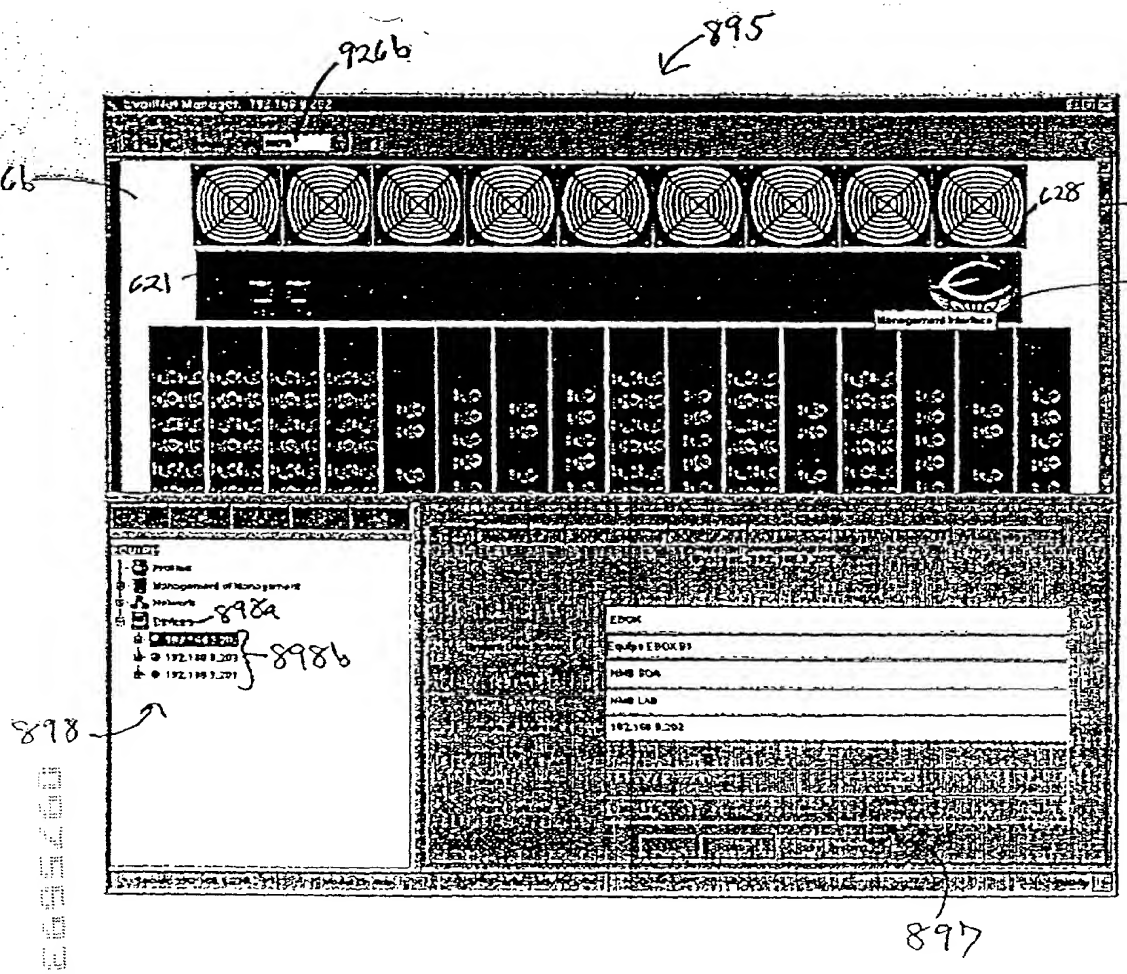


Fig. 4i

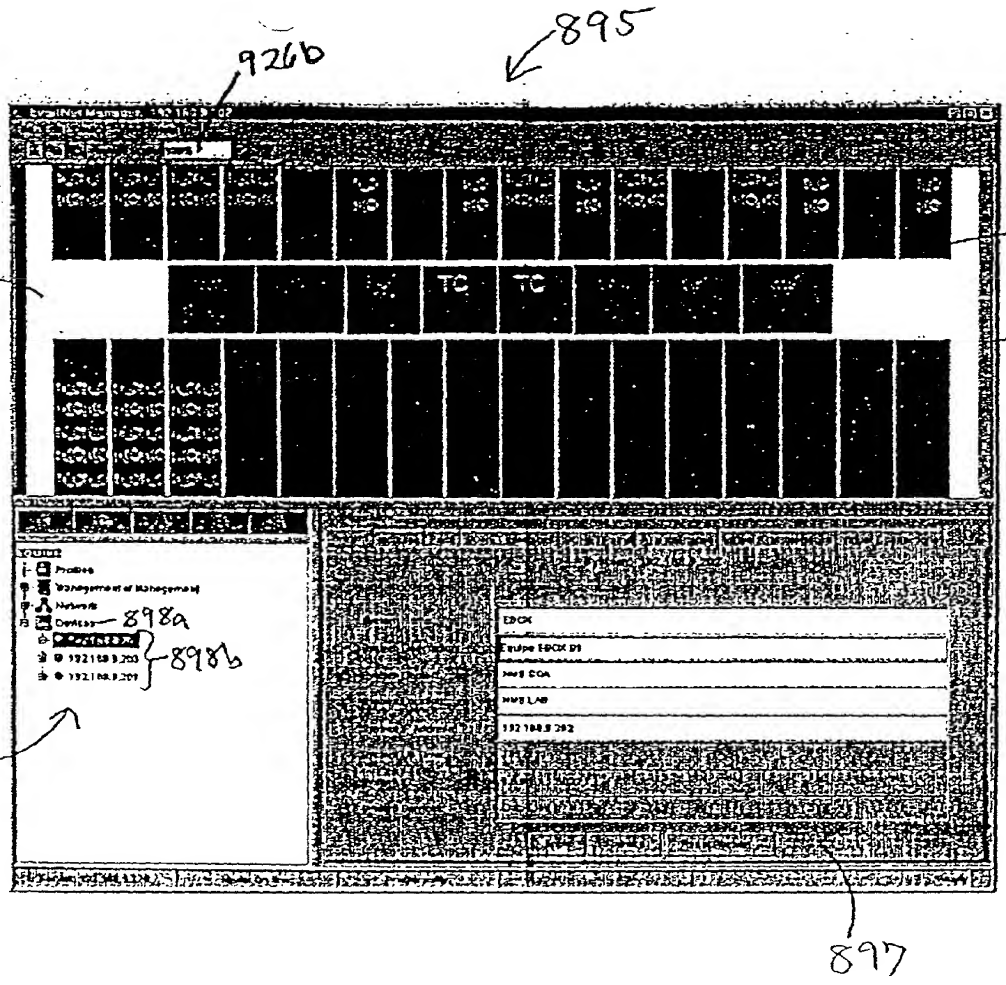


Fig. 4j

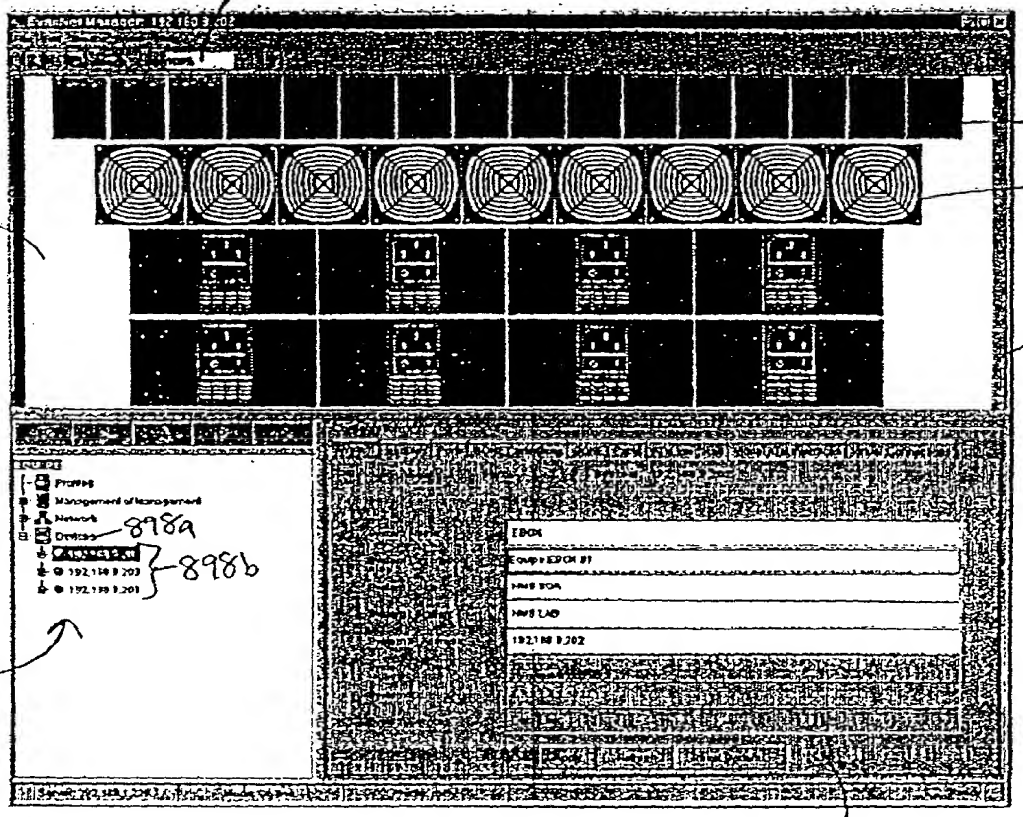


Fig. 4K

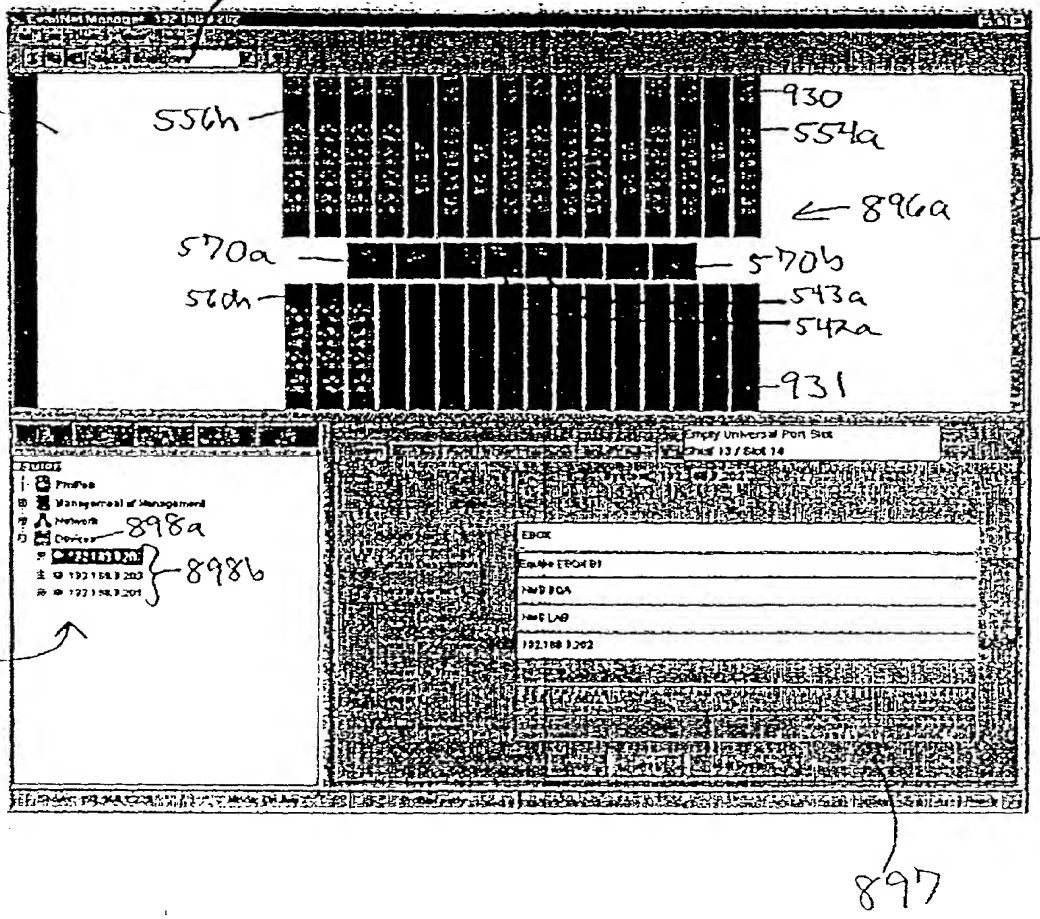

895
926b
896b
555h
930
554a
896a
926a
570a
570b
562h
543a
542a
931
898a
898b
898
897

Fig. 4L

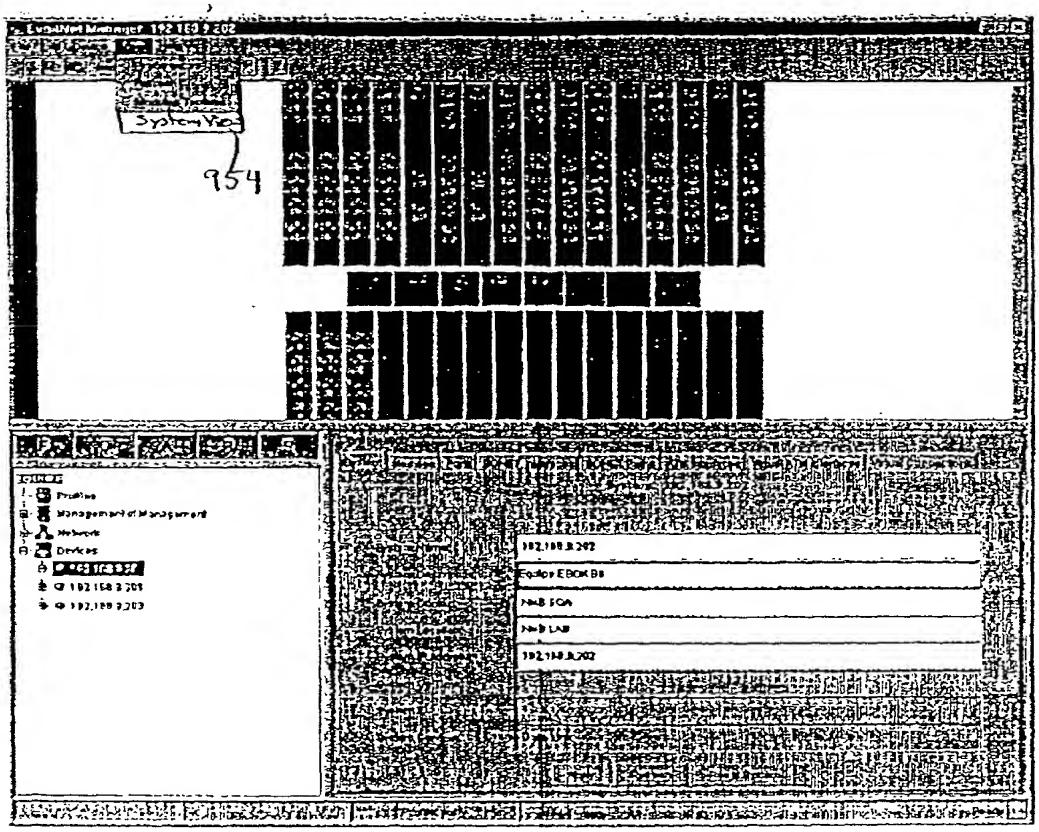


Fig. 4m

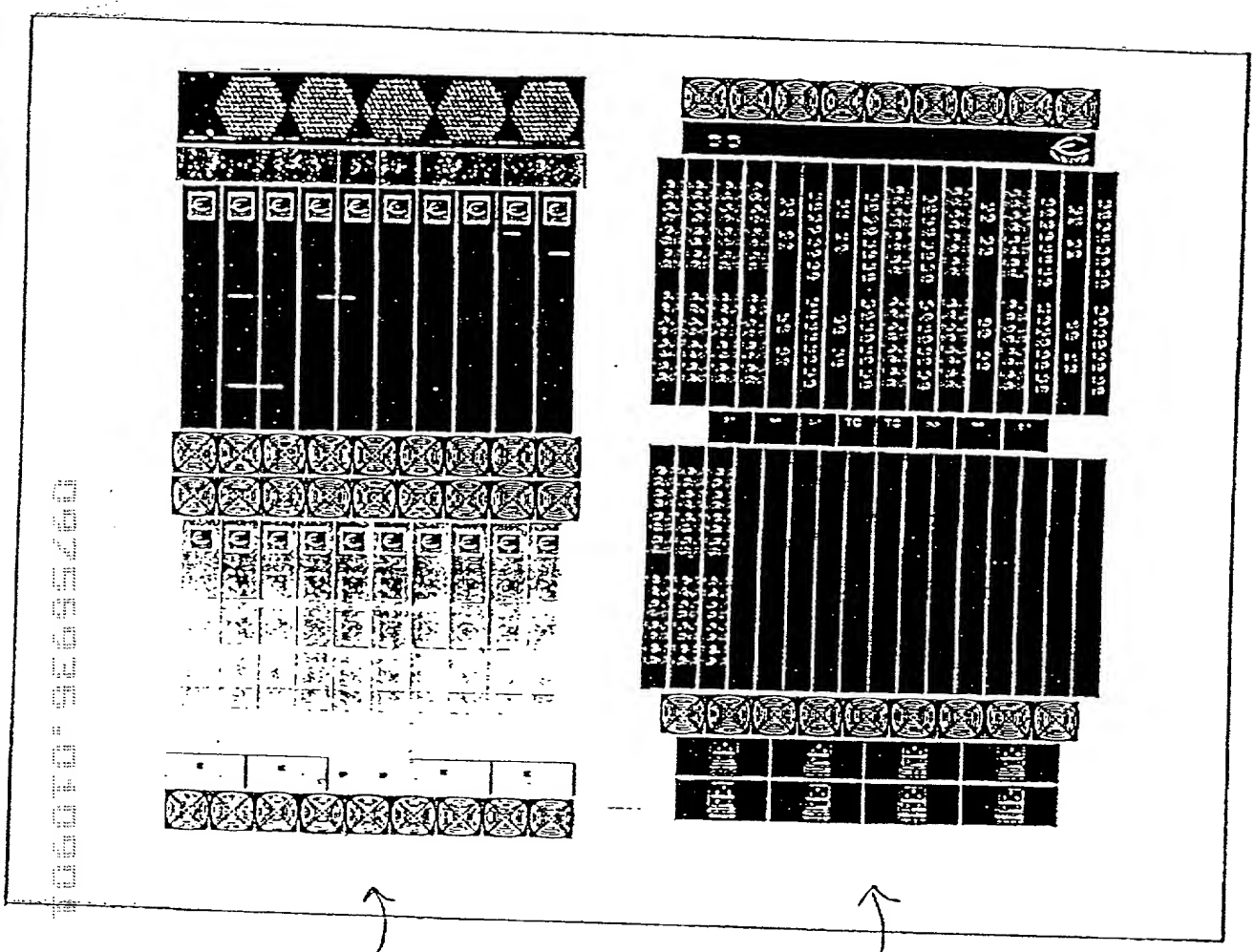


Fig. 4n

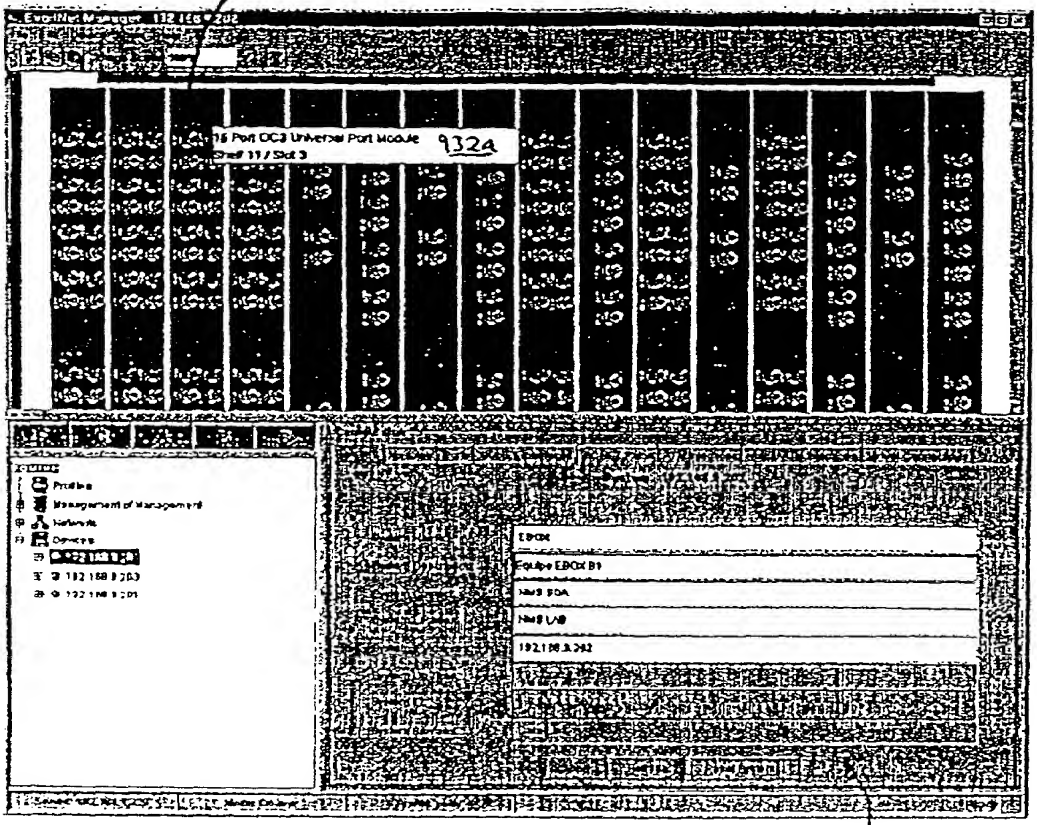

555
895
16 Port OC3 Universal Port Module
Shelf 11 / Slot 3
9324
897

Fig. 4o

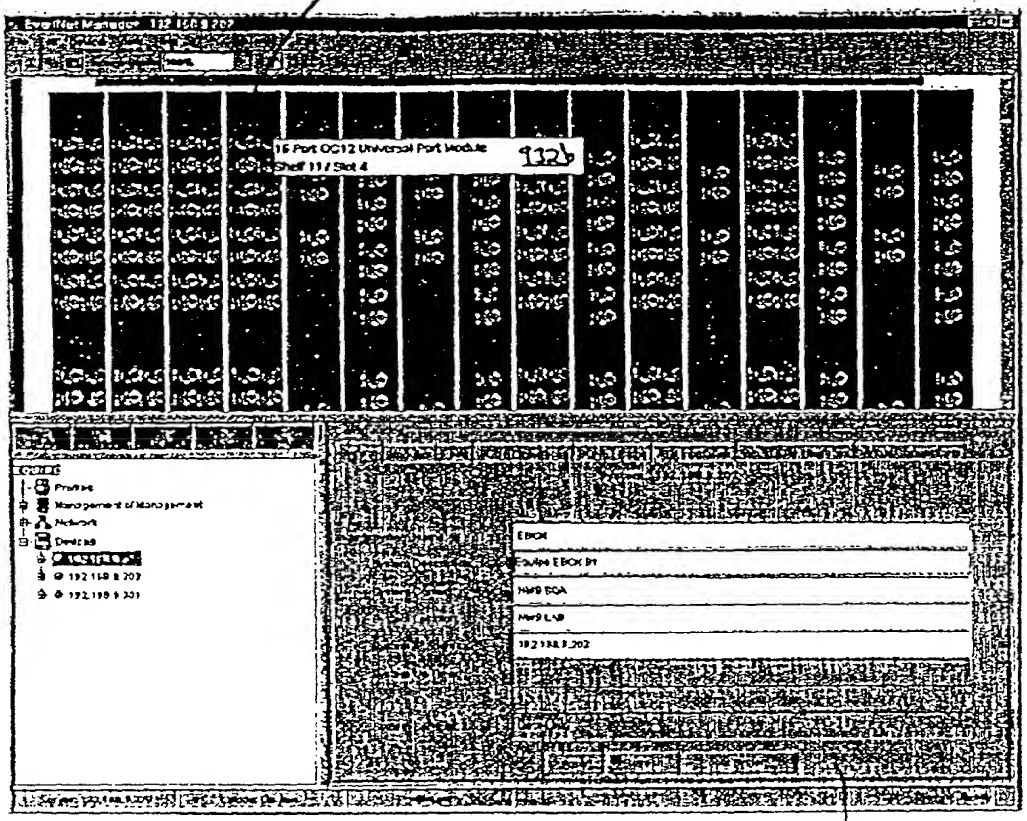

556e
895
16 Port OC12 Universal Port Module
Shelf 11 / Slot 4
932b
897

Fig. 4P

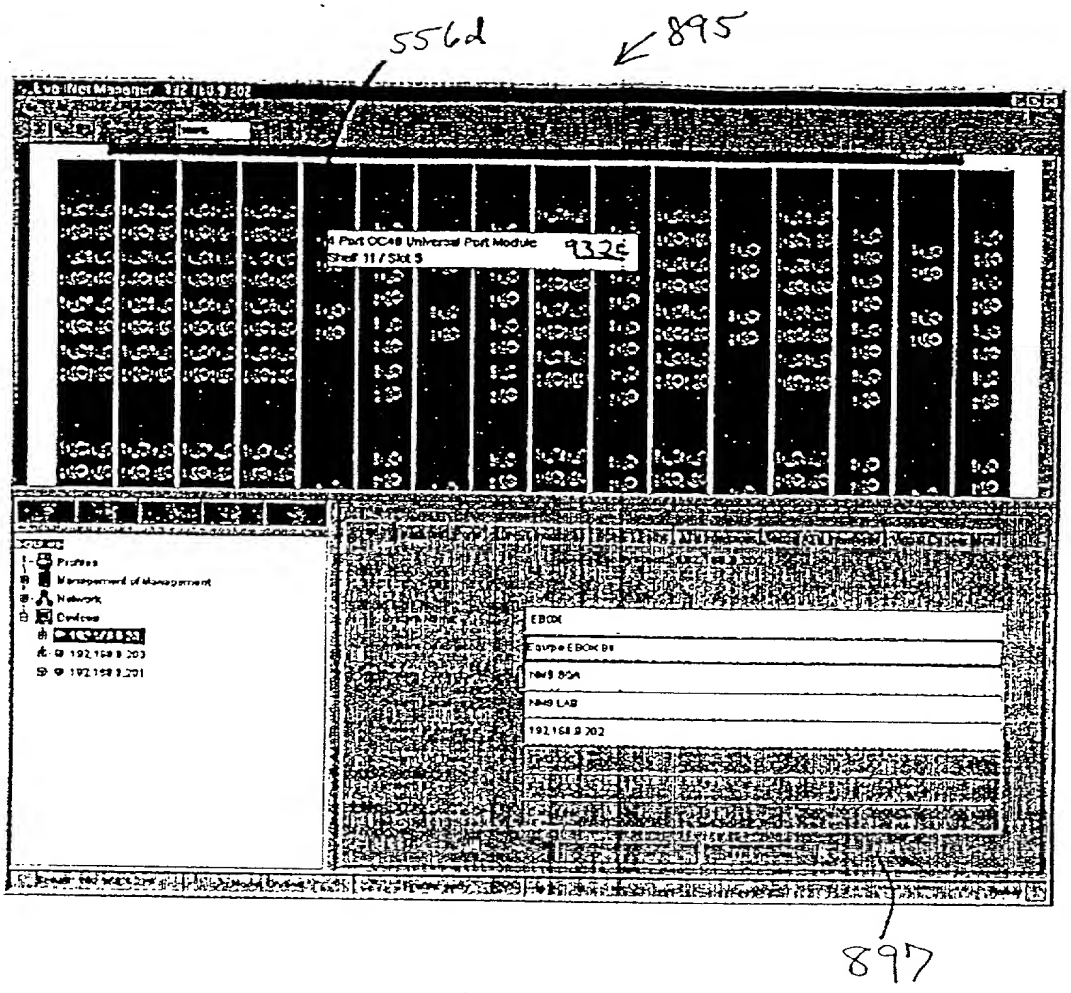

5562
895
4 Port OC48 Universal Port Module
Shelf 11 / Slot 5
9325
EBOX
192.168.9.202
897

Fig. 4g

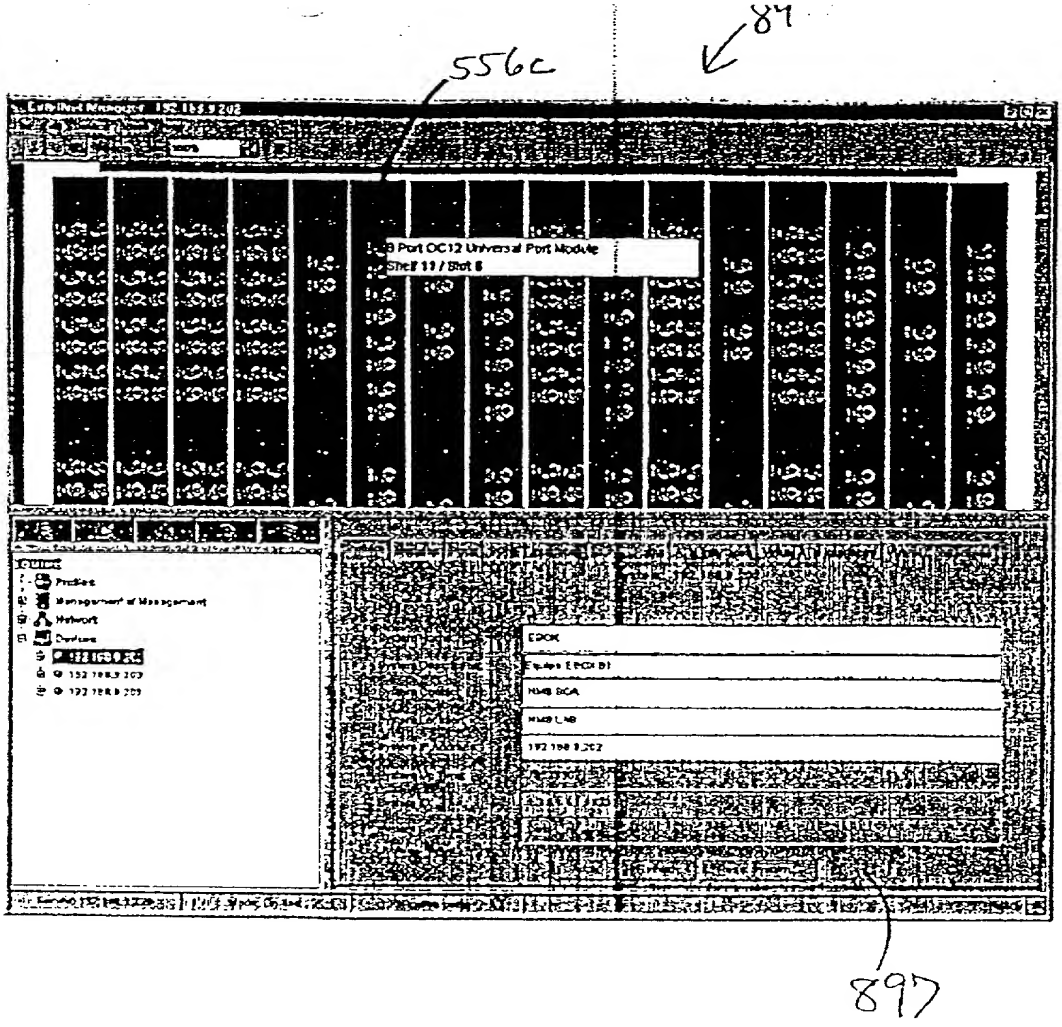


Fig. 4F

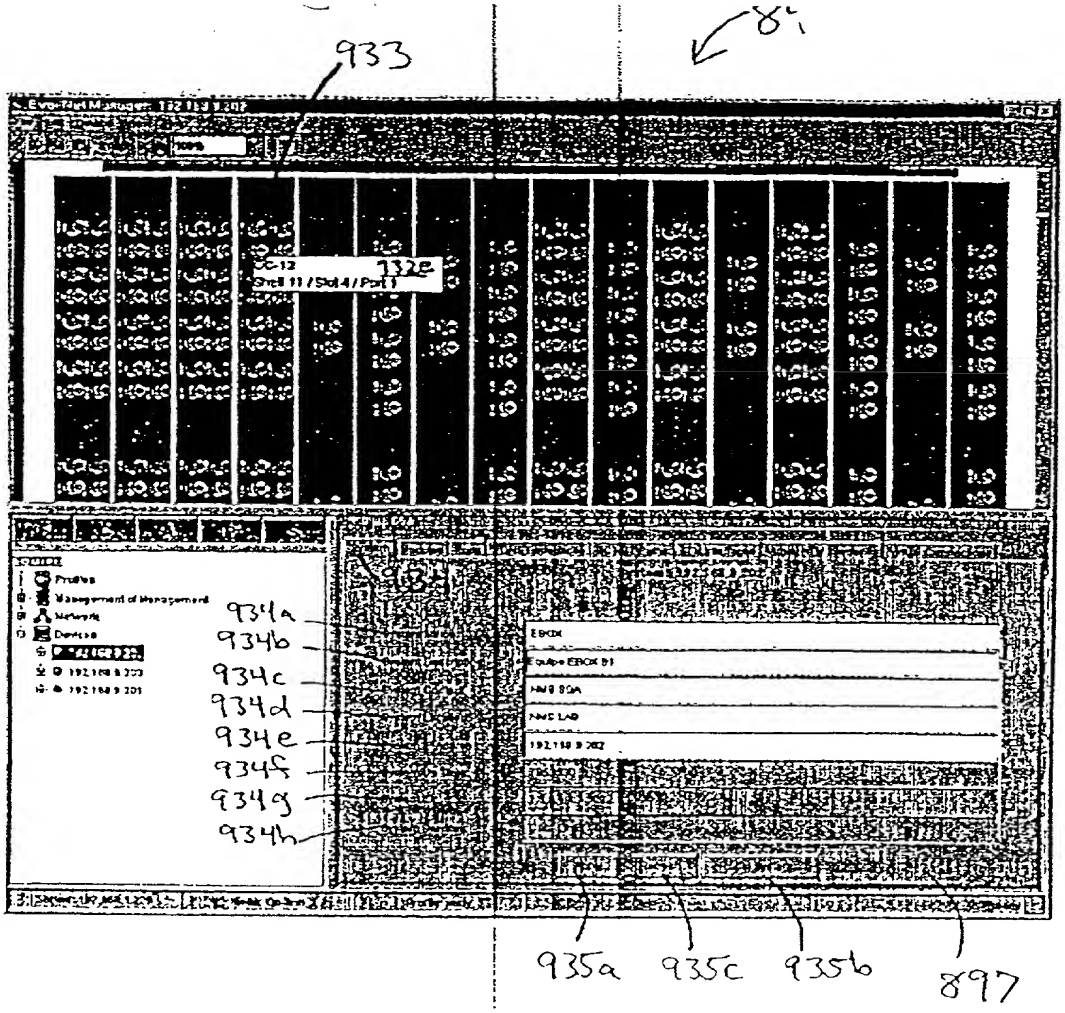

933
897
732e
934a
934b
934c
934d
934e
934f
934g
934h
935a
935c
935b
897

Fig. 4s

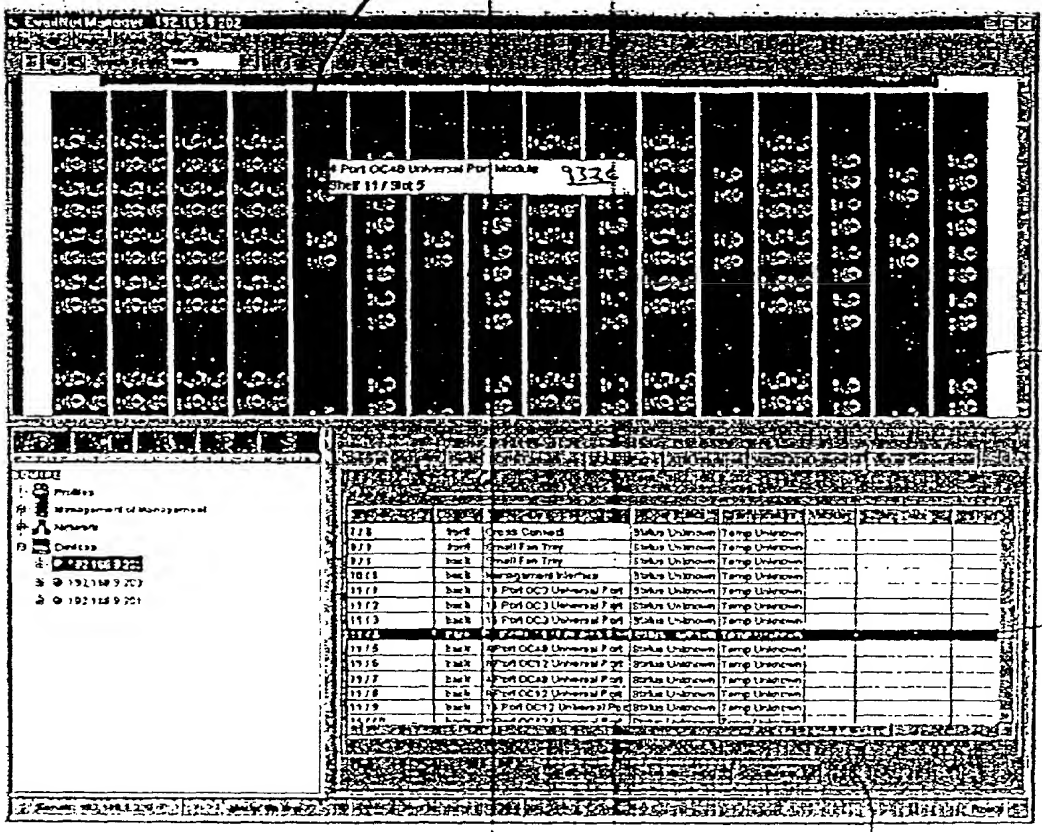


Fig. 4t

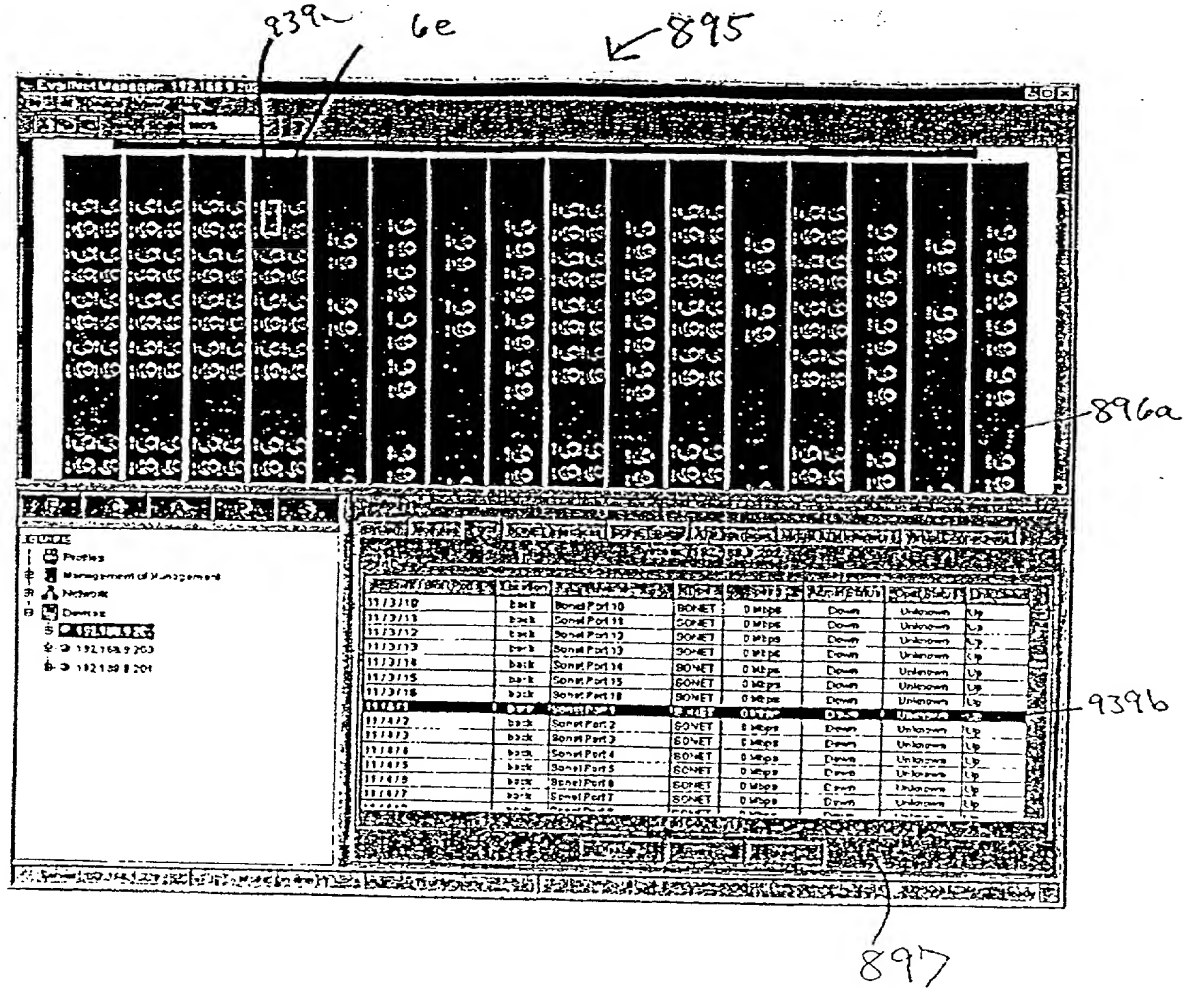


Fig. 4u

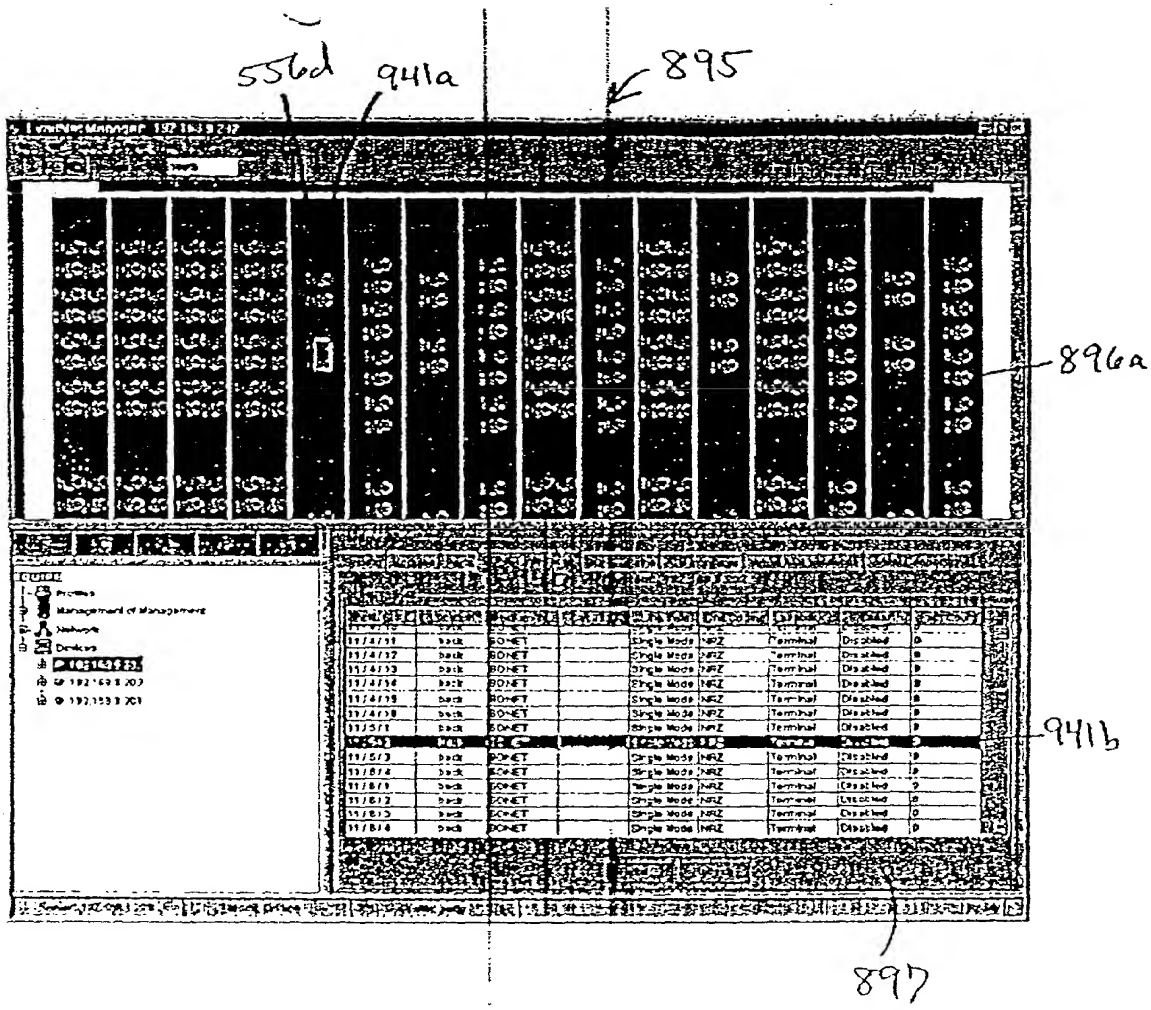


Fig. 4v

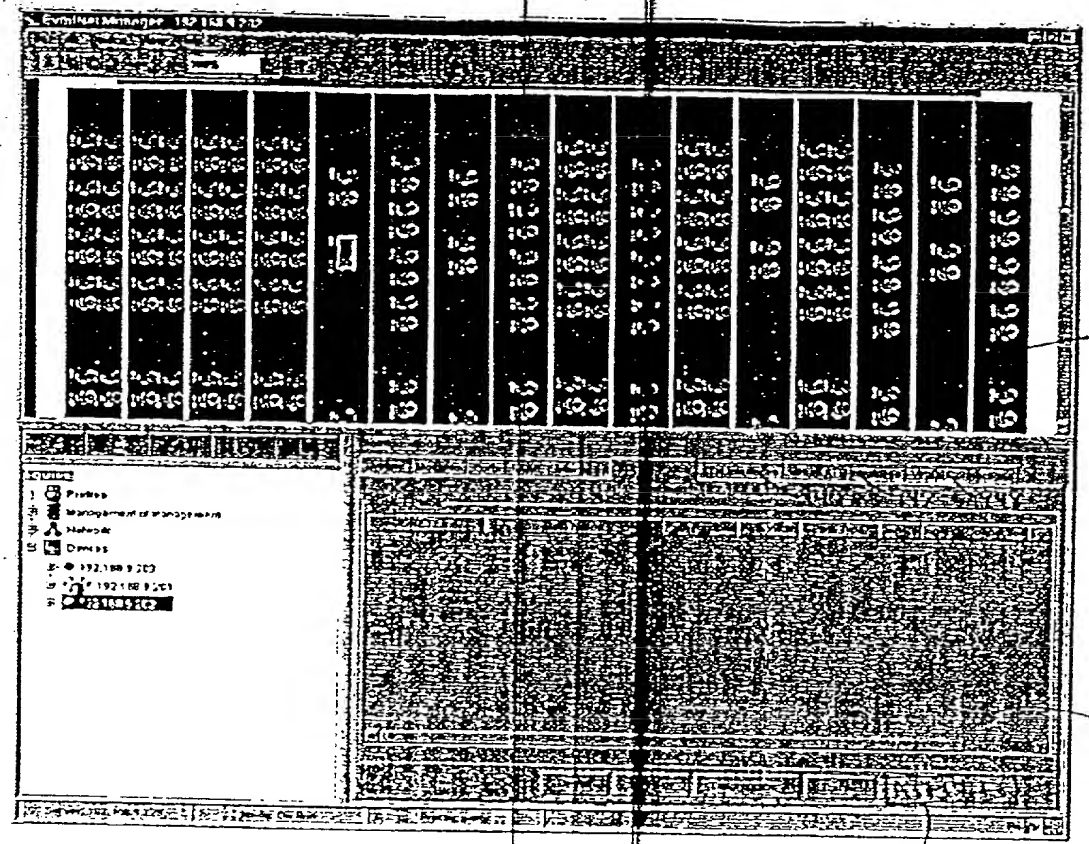


Fig. 4W

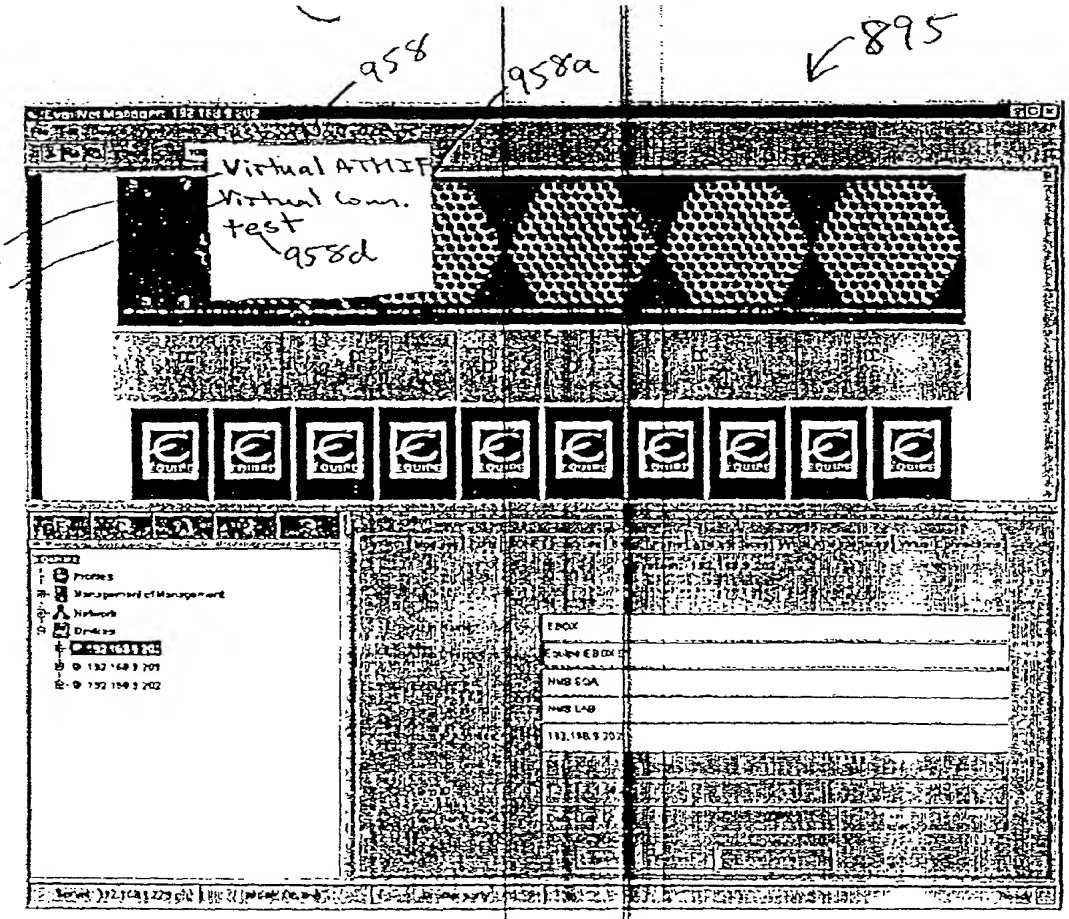


Fig. 4X

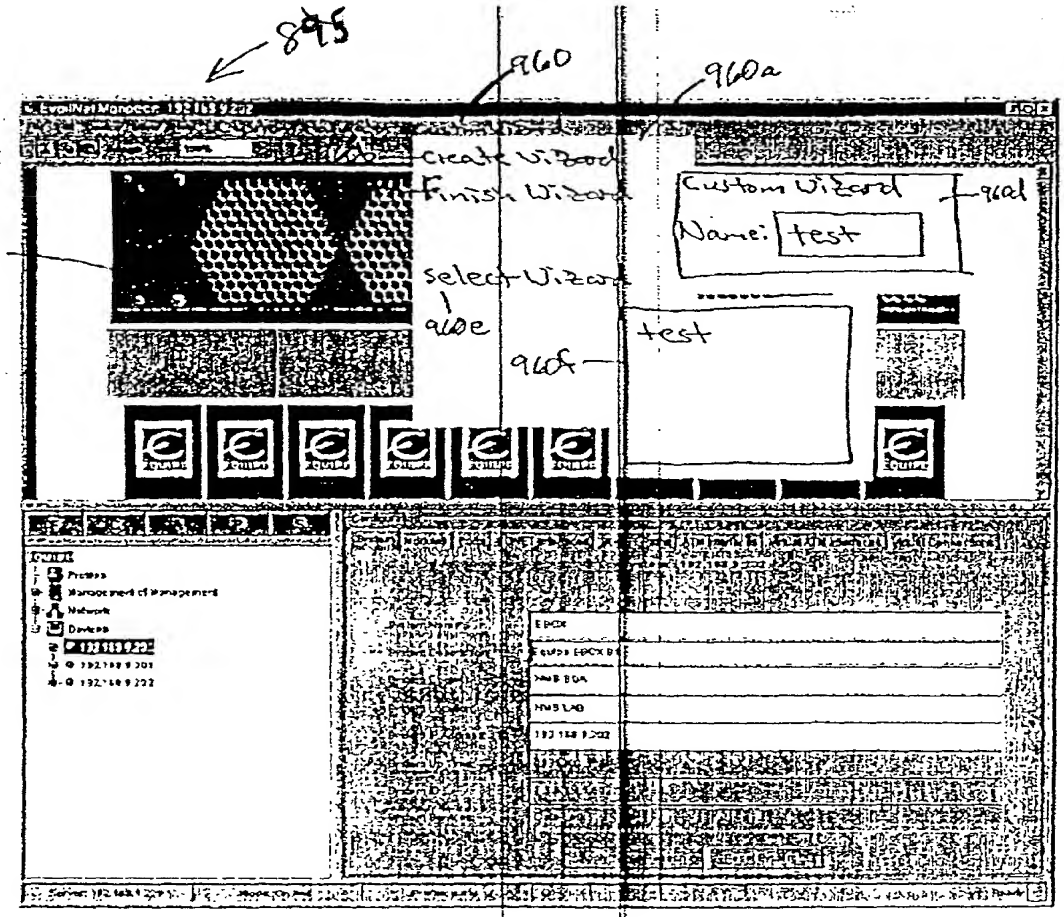

895
960
960a
896a
Create Wizard
Finish Wizard
Custom Wizard
960d
Name:
test
Select Wizard
960e
960f
test
EPOX

Fig. 4Y

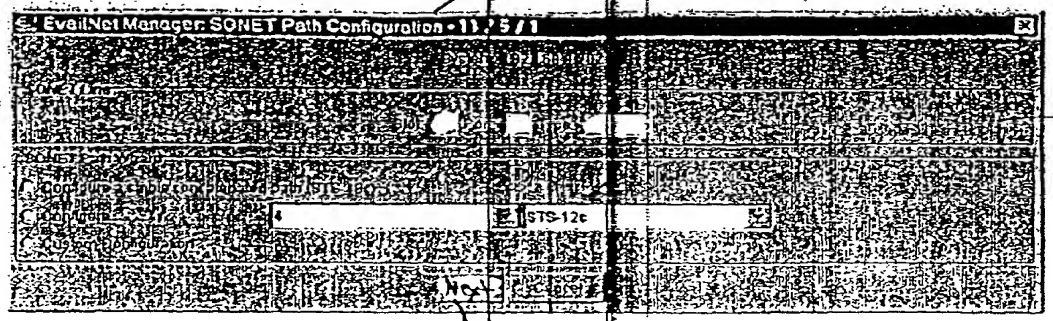

961
EvailNet Manager: SONET Path Configuration - 11.25.71
961a
STS-12c
961b

Fig. 42

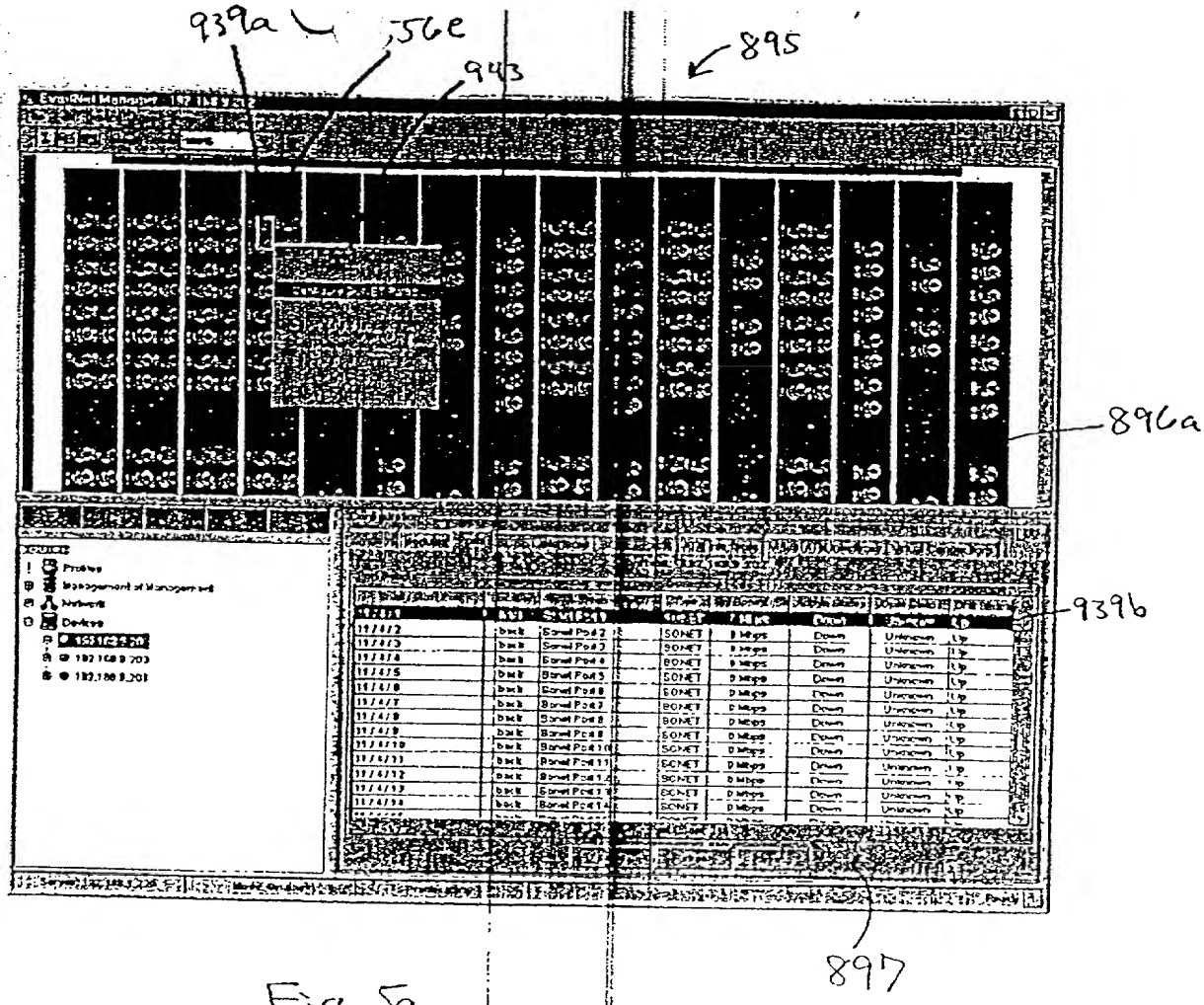
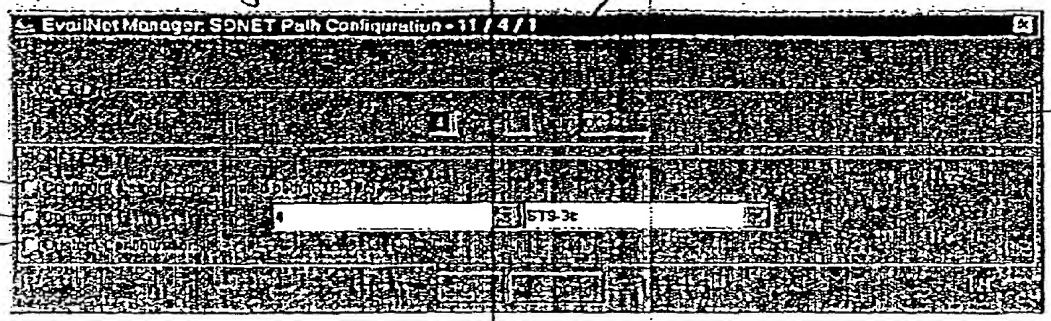


Fig. 5a

Fig. 5b


944
EvoliNet Manager: SONET Path Configuration - 11 / 4 / 1
944a
944b
944c
944d
STS-3c

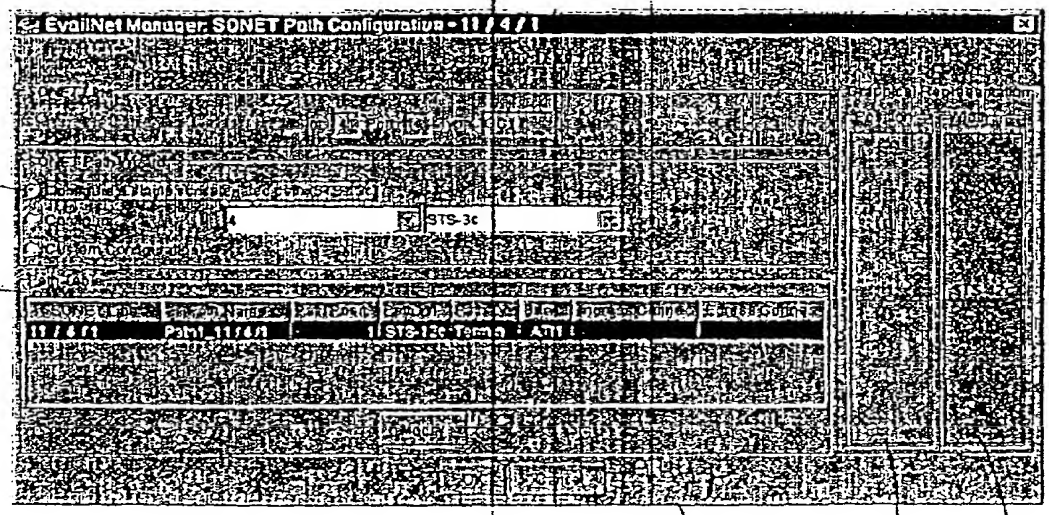
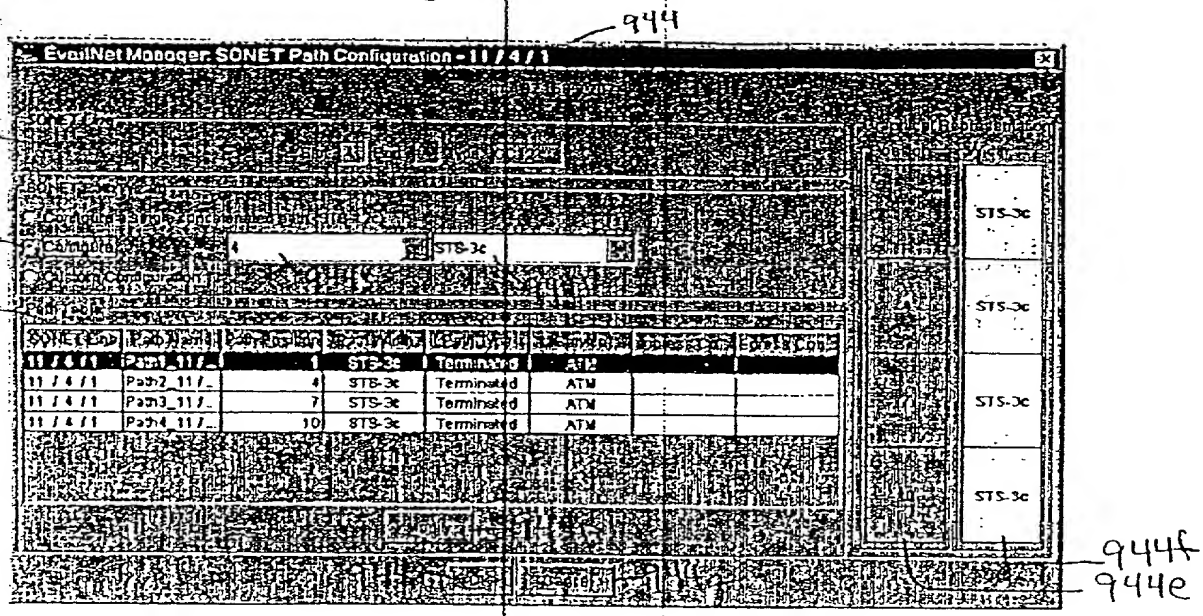

EvoliNet Manager: SONET Path Configuration - 11 / 4 / 1
944b
944g
STS-3c
944
944e
944f

Fig. 5c

Fig. 5d


EvanNet Manager: SONET Path Configuration - 11 / 4 / 1
944
944a
944c
944g
944f
944e
STS-3c
STS-3c
STS-3c
STS-3c
Path1_11/..
Path2_11/..
Path3_11/..
Path4_11/..
Terminated
ATM

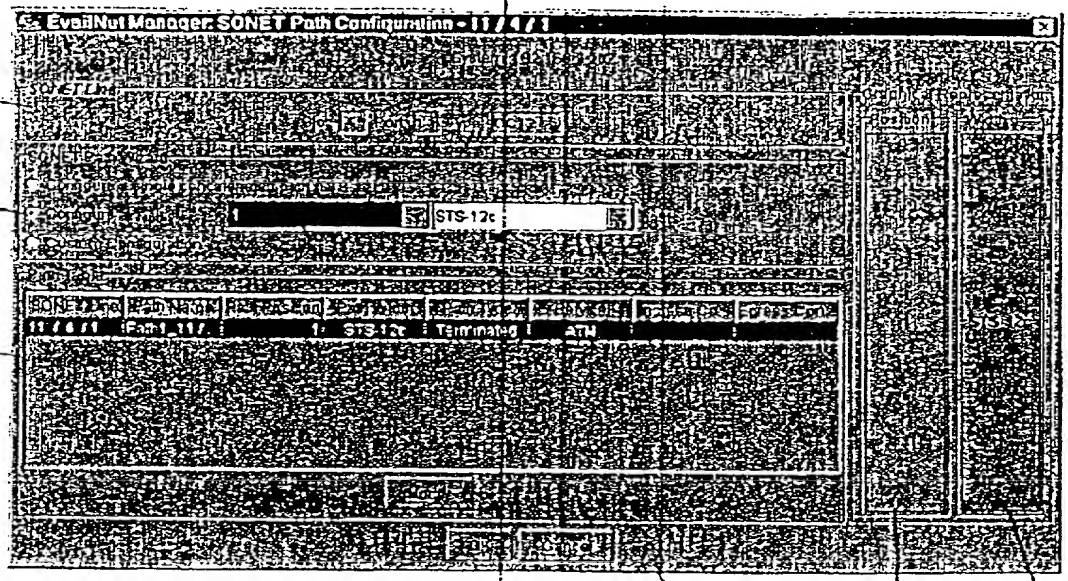
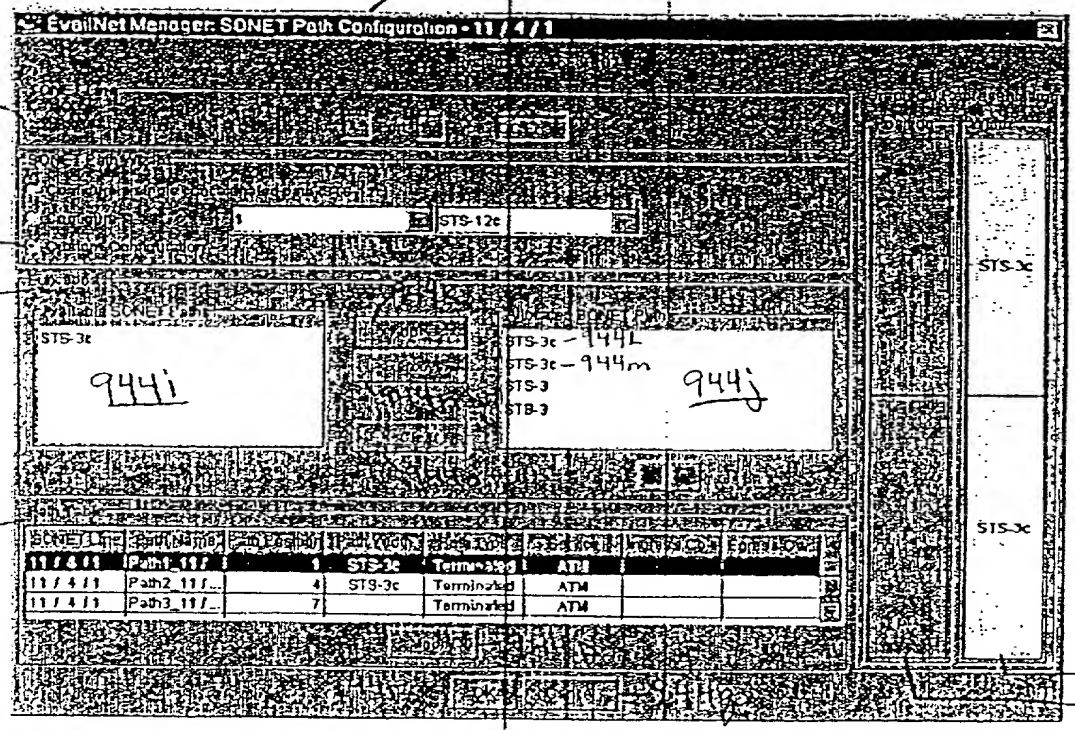

EvanNet Manager: SONET Path Configuration - 11 / 4 / 1
944a
944c
944g
STS-12c
Path1_11/..
Terminated
ATM
944
944e
944f

Fig. 5e

Fig. 5f


944
944a
944b
944h
944i
944j
944L
944m
944g
944f
944e
EvailNet Manager: SONET Path Configuration - 11 / 4 / 1
STS-12c
STS-3c
STS-3c
STS-3c
STS-3c
STS-3
STB-3
11 / 4 / 1
Path1_11 /...
1
STS-3c
Terminated
ATM
11 / 4 / 1
Path2_11 /...
4
STS-3c
Terminated
ATM
11 / 4 / 1
Path3_11 /...
7
Terminated
ATM

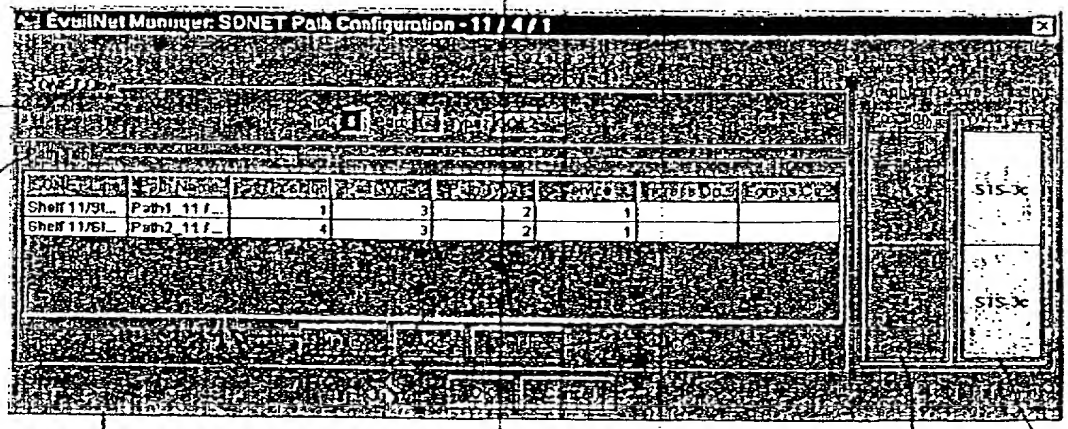

945a
945g
945
945e
945f
EvailNet Manager: SONET Path Configuration - 11 / 4 / 1
Shelf 11/St...
Path1_11 /...
1
3
2
1
Shelf 11/St...
Path2_11 /...
4
3
2
1
STS-3c
STS-3c

Fig. 5g

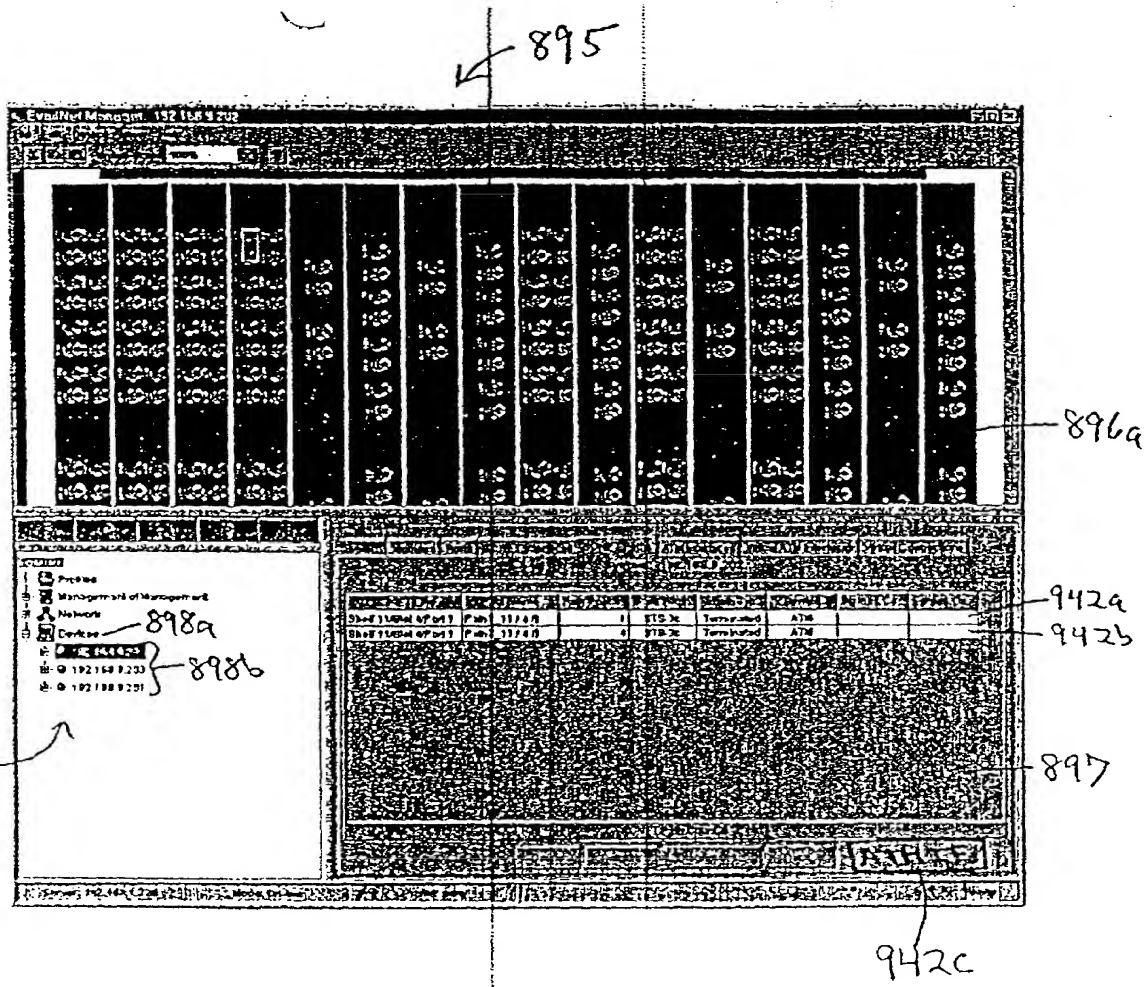


Fig.5h

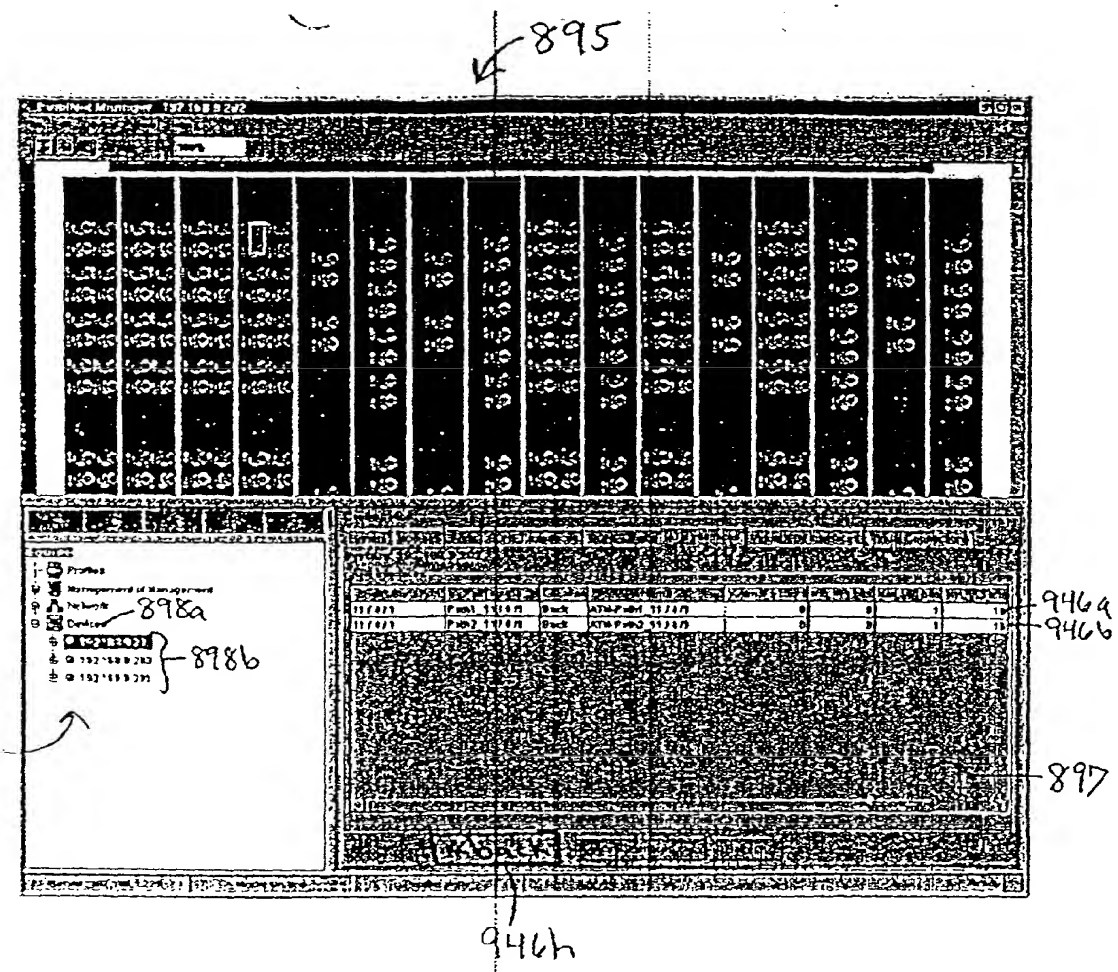


Fig. 5i

Fig. 5j

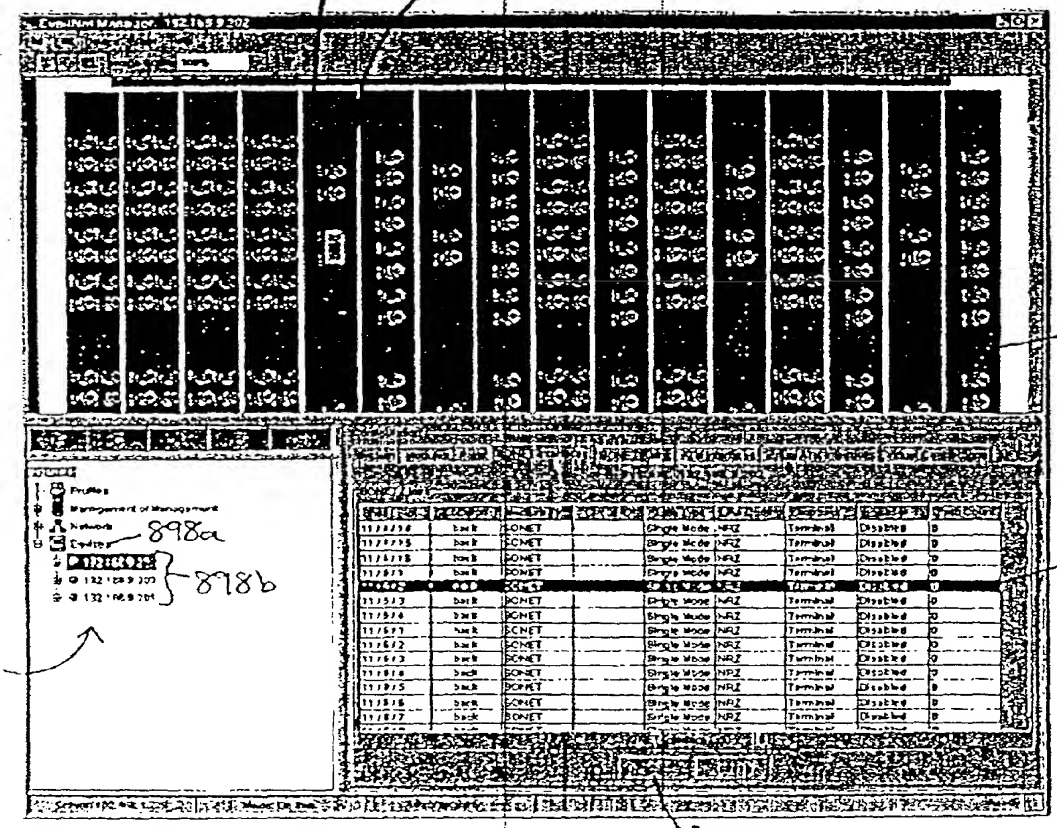

556d
941a
895
896a
898a
898b
898
949a
940a

Fig. 5K

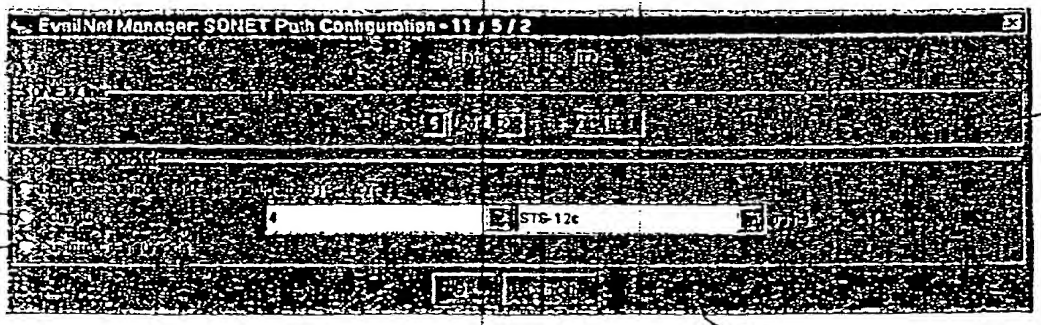
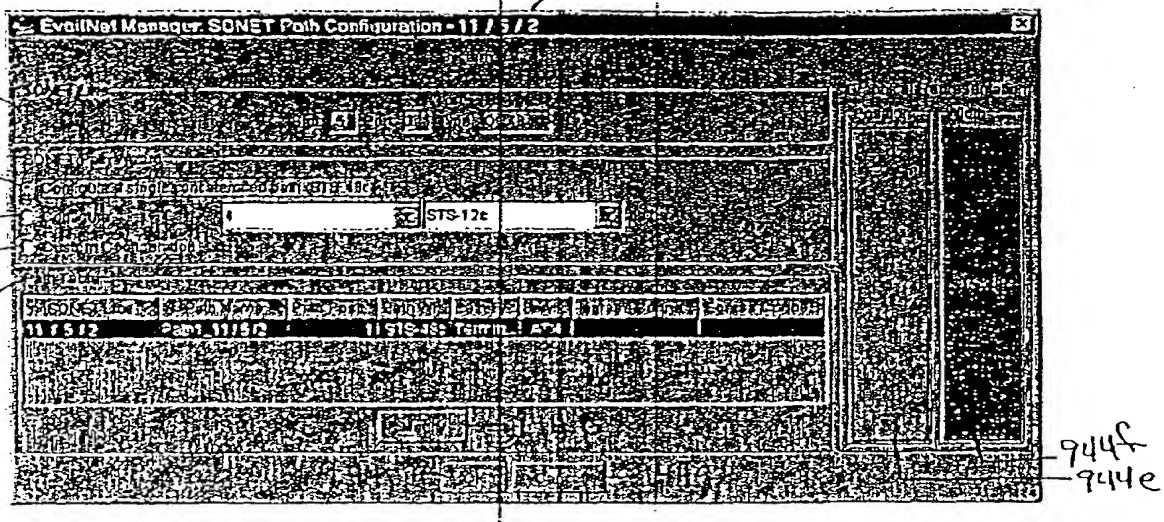

EvenNet Manager: SONET Path Configuration - 11 / 5 / 2
944a
944b
944c
944d
STS-12c
944

Fig. 5L


944
EvaliNet Manager: SONET Path Configuration - 11 / 5 / 2
944a
944b
944c
944d
944g
STS-12c
944f
944e

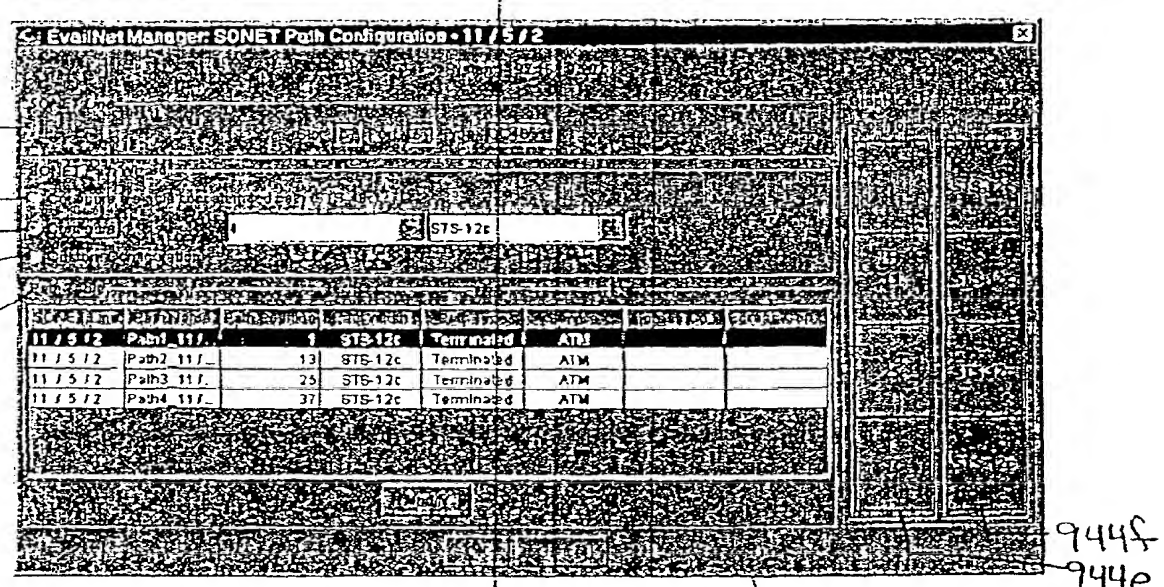

EvaliNet Manager: SONET Path Configuration - 11 / 5 / 2
944a
944b
944c
944d
944g
STS-12c
11 / 5 / 2 Path1_11/_ 1 STS-12c Terminated ATM
11 / 5 / 2 Path2_11/_ 13 STS-12c Terminated ATM
11 / 5 / 2 Path3_11/_ 25 STS-12c Terminated ATM
11 / 5 / 2 Path4_11/_ 37 STS-12c Terminated ATM
944f
944e
944

Fig. 5m

Fig. 5n

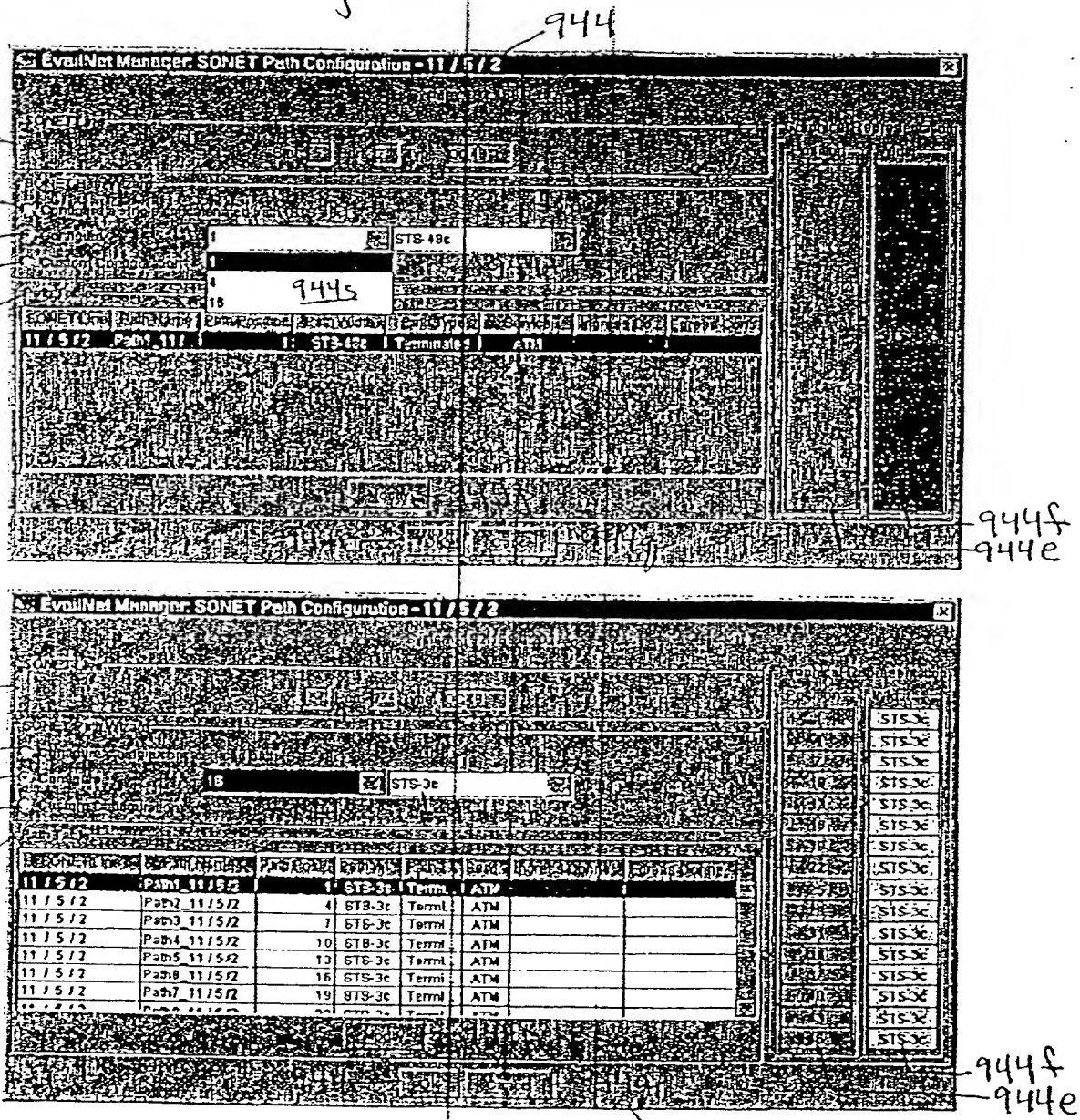

944
944a
944b
944c
944d
944g
944f
944e
944
EvaliNet Manager: SONET Path Configuration - 11 / 5 / 2
STS-48c
STS-3c
Path1_11/5/2
Path2_11/5/2
Path3_11/5/2
Path4_11/5/2
Path5_11/5/2
Path6_11/5/2
Path7_11/5/2
Terminal
ATM

Fig. 5o

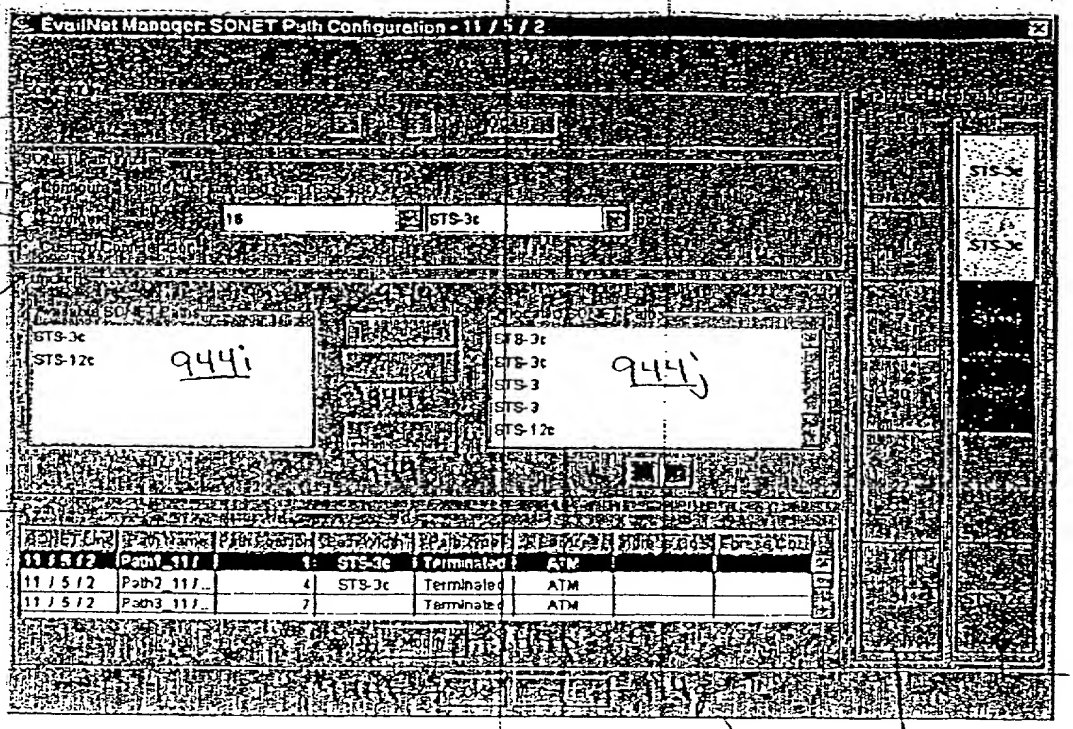

EvailNet Manager: SONET Path Configuration - 11 / 5 / 2
944a
944b
944c
944d
944h
944i
944j
944g
944f
944
944e
STS-3c
STS-12c
STS-3
STS-12c
11 / 5 / 2
Path2_11/...
Path3_11/...
Terminated
ATM

Fig. 5P

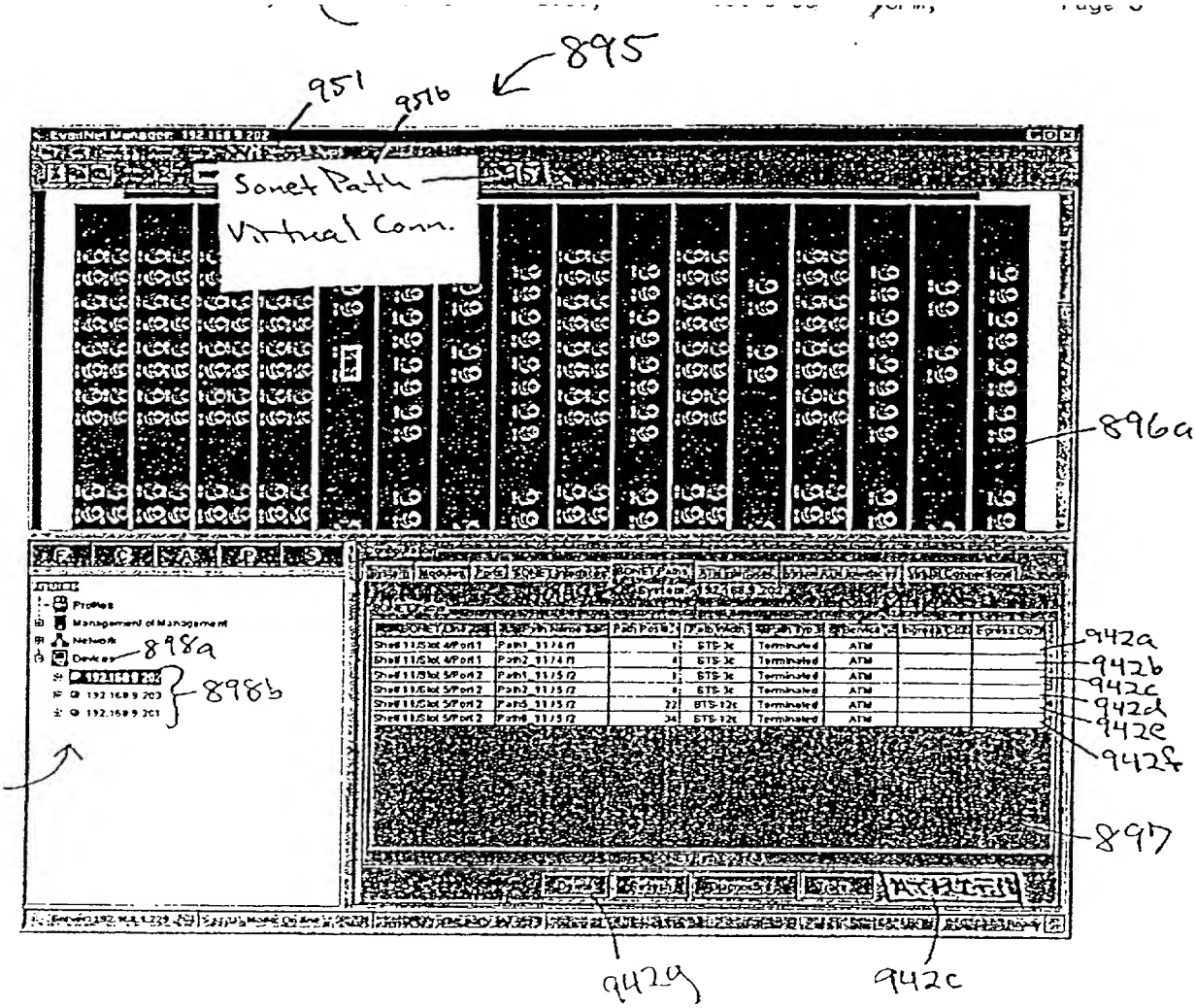

895
951
956
Sonet Path
Virtual Conn.
896a
898a
898b
898
942a
942b
942c
942d
942e
942f
897
942g
942c

Fig. 5g

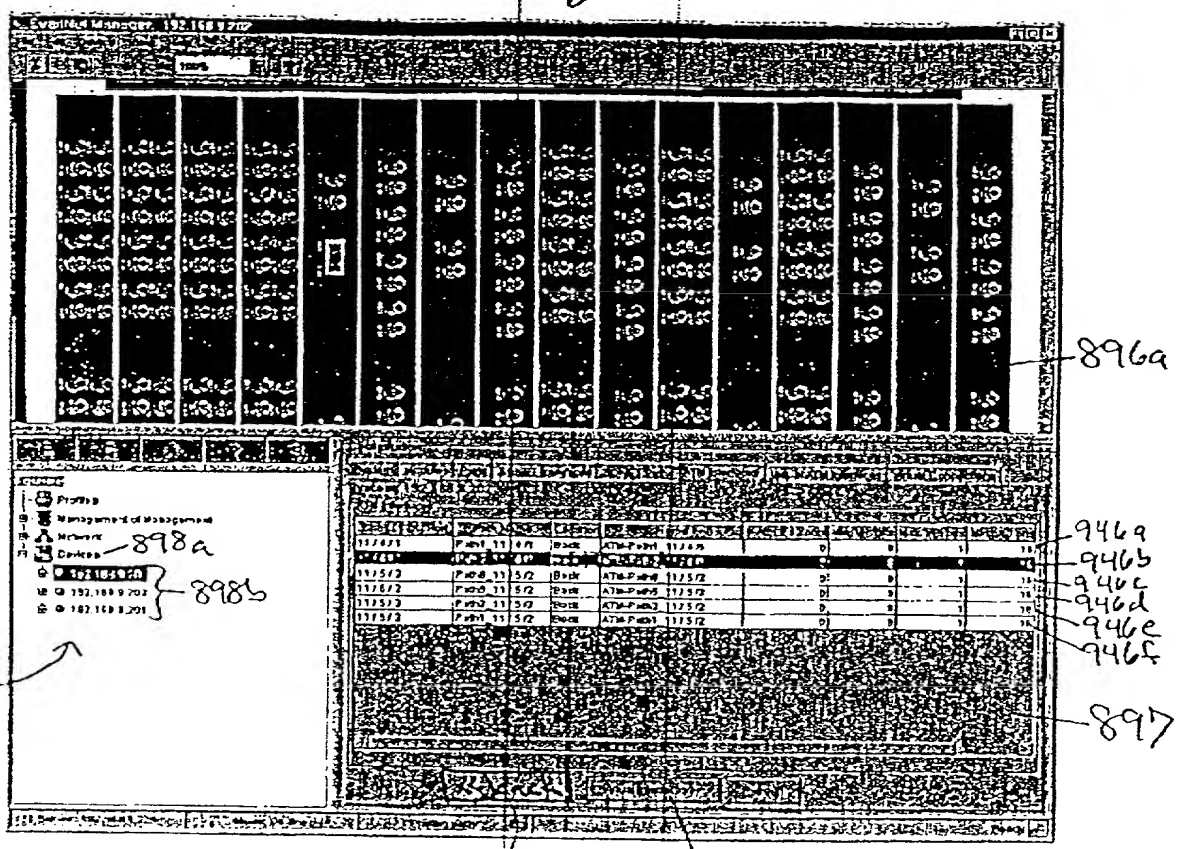

895
896a
898a
898b
898
946a
946b
946c
946d
946e
946f
897
946h
946g

Fig. 5F

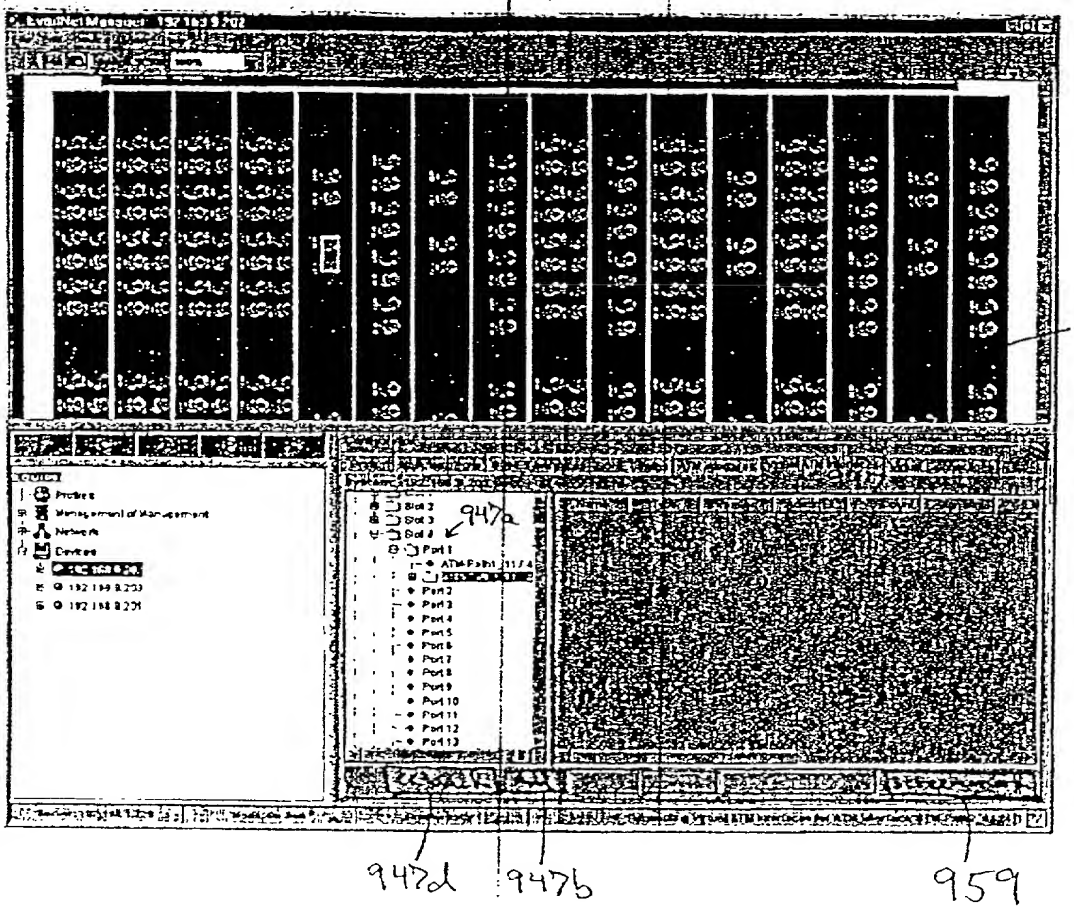
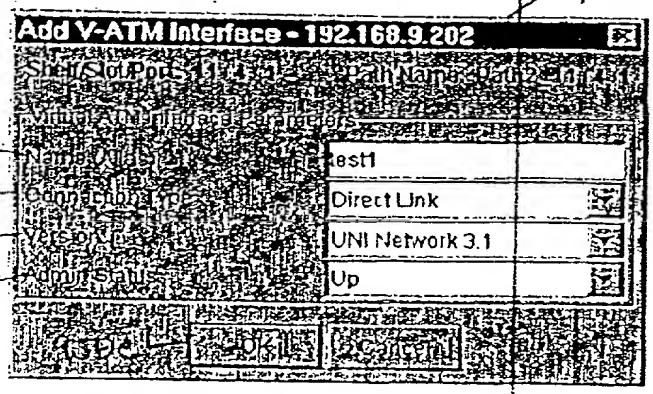


Fig. 5s

Fig. 5t


950
Add V-ATM Interface - 192.168.9.202
950d
Name (1 to 32)
test1
950a
Conn Cntrl Enable
Direct Link
950b
Version
UNI Network 3.1
950c
Oper Status
Up

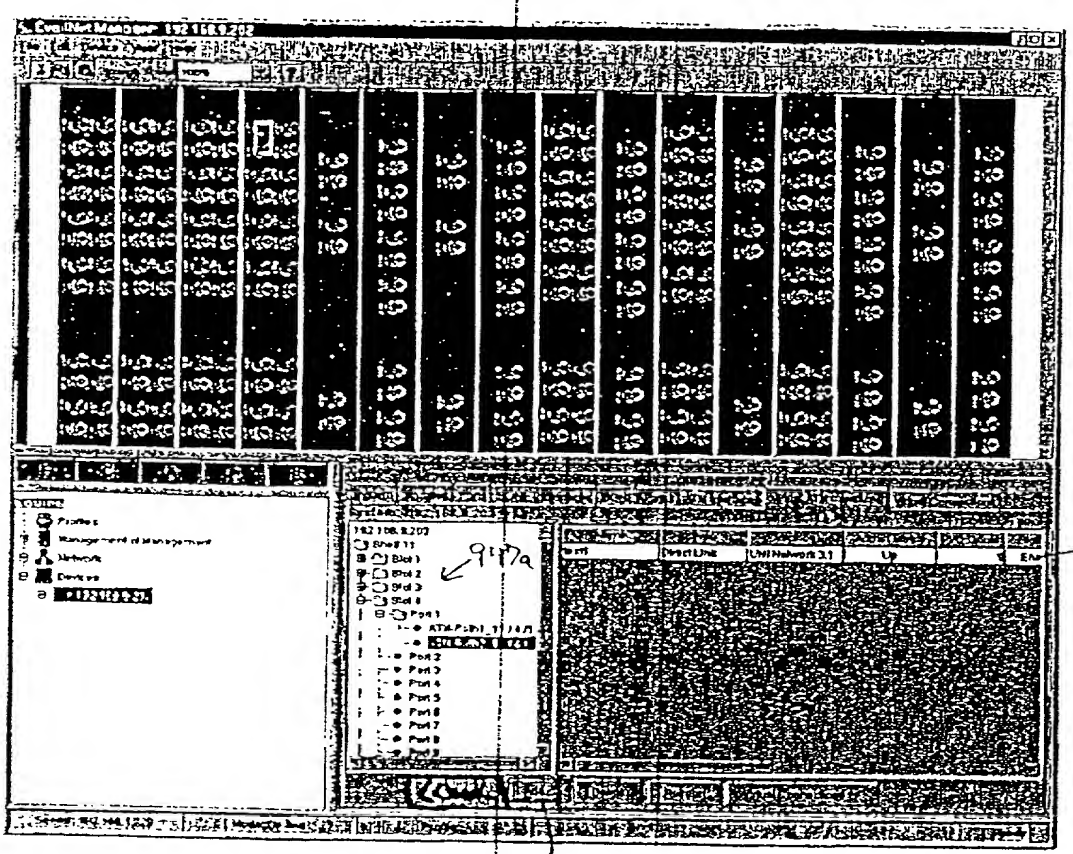

947a
947c
947b

Fig. 5u

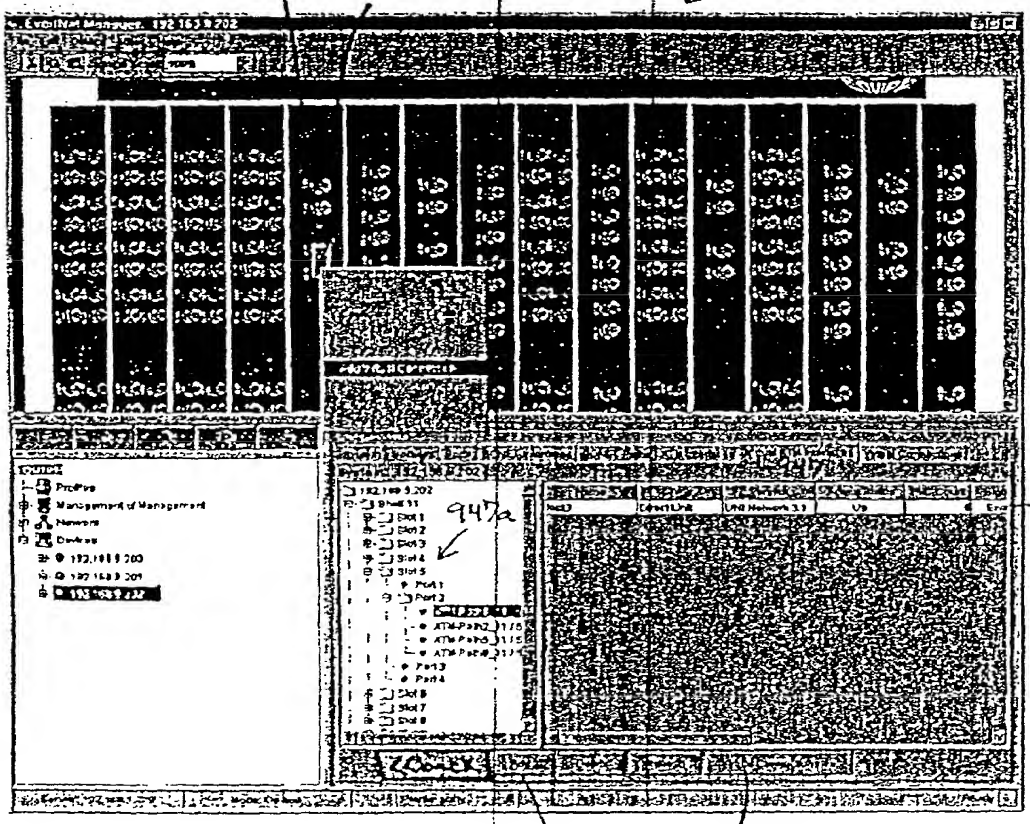


Fig. 5v

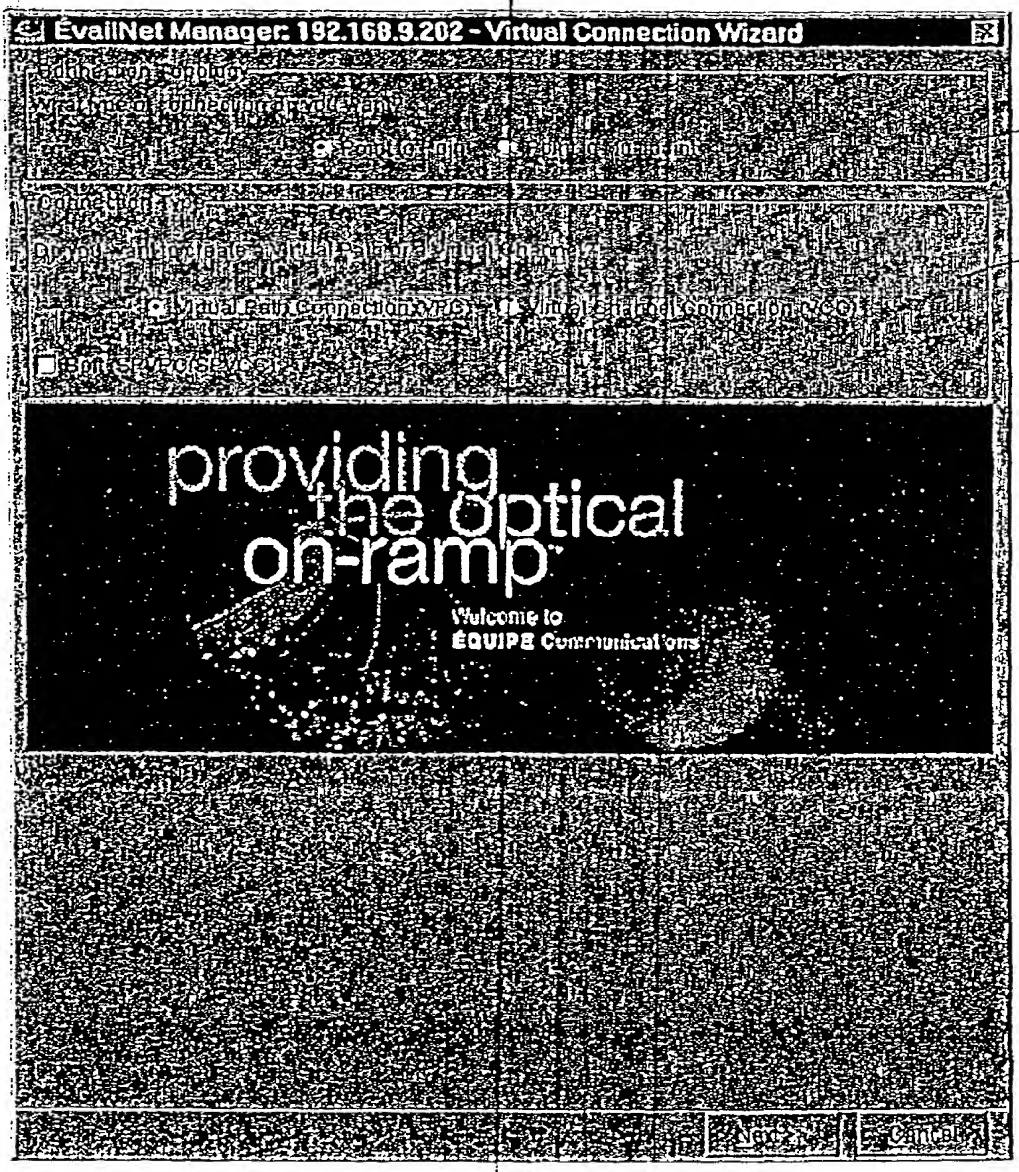

952
EvailNet Manager: 192.168.9.202 - Virtual Connection Wizard
952a
952b
providing the optical on-ramp
Welcome to
EQUIPE Communications
Next >
Cancel

Fig. 5w

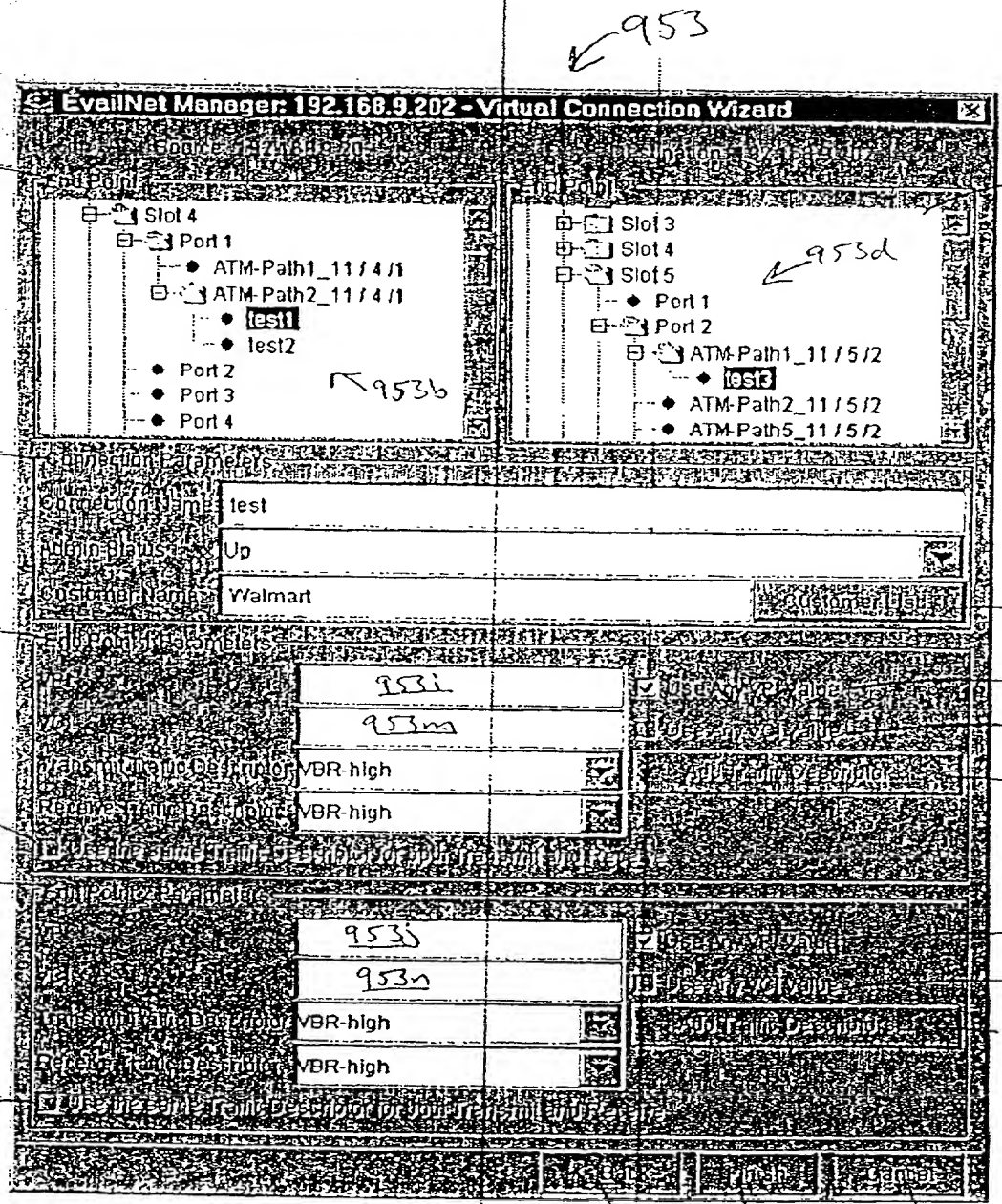

953
EvailNet Manager: 192.168.9.202 - Virtual Connection Wizard
953a
End Point
Slot 4
Port 1
ATM-Path1_11 / 4 /1
ATM-Path2_11 / 4 /1
test1
test2
Port 2
Port 3
Port 4
953b
953c
End Point
Slot 3
Slot 4
Slot 5
953d
Port 1
Port 2
ATM-Path1_11 / 5 /2
test3
ATM-Path2_11 / 5 /2
ATM-Path5_11 / 5 /2
953e
Connection Parameters
Connection Name
test
Admin Status
Up
Customer Name
Walmart
953h
953f
End Point Traffic Descriptor
953i
953K
953m
953o
Transmit Traffic Descriptor
VBR-high
953g
Receive Traffic Descriptor
VBR-high
953s
953q
End Point Policing Parameters
953j
953l
953n
953p
Transmit Traffic Descriptor
VBR-high
953r
Receive Traffic Descriptor
VBR-high
953t
953u
953w
953v

Fig. 5X

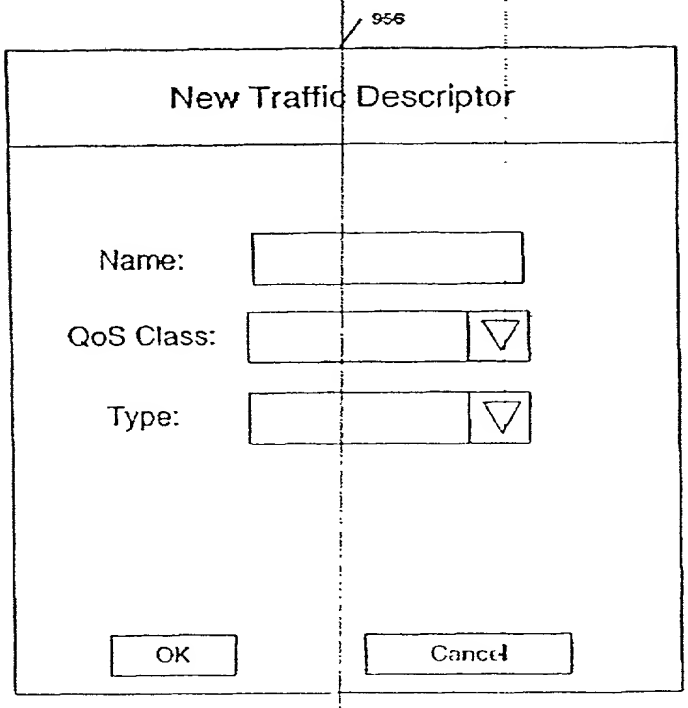


Fig. 5Y

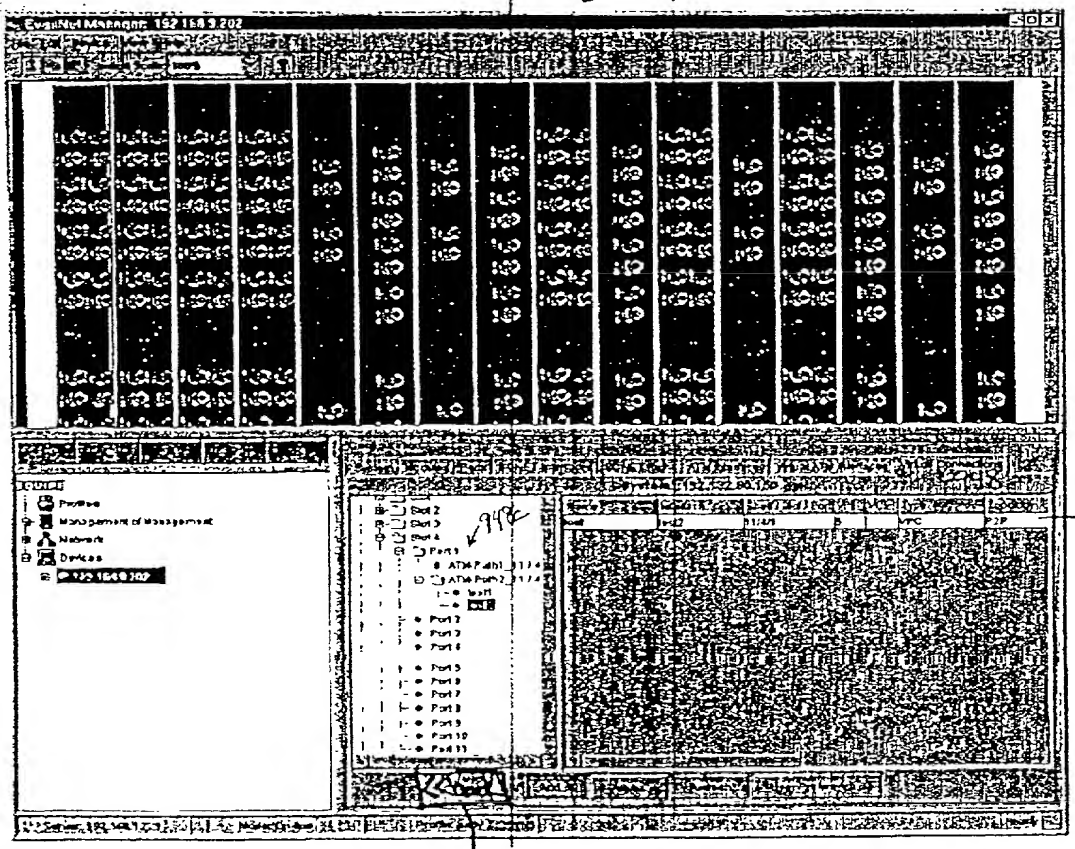


Fig. 57

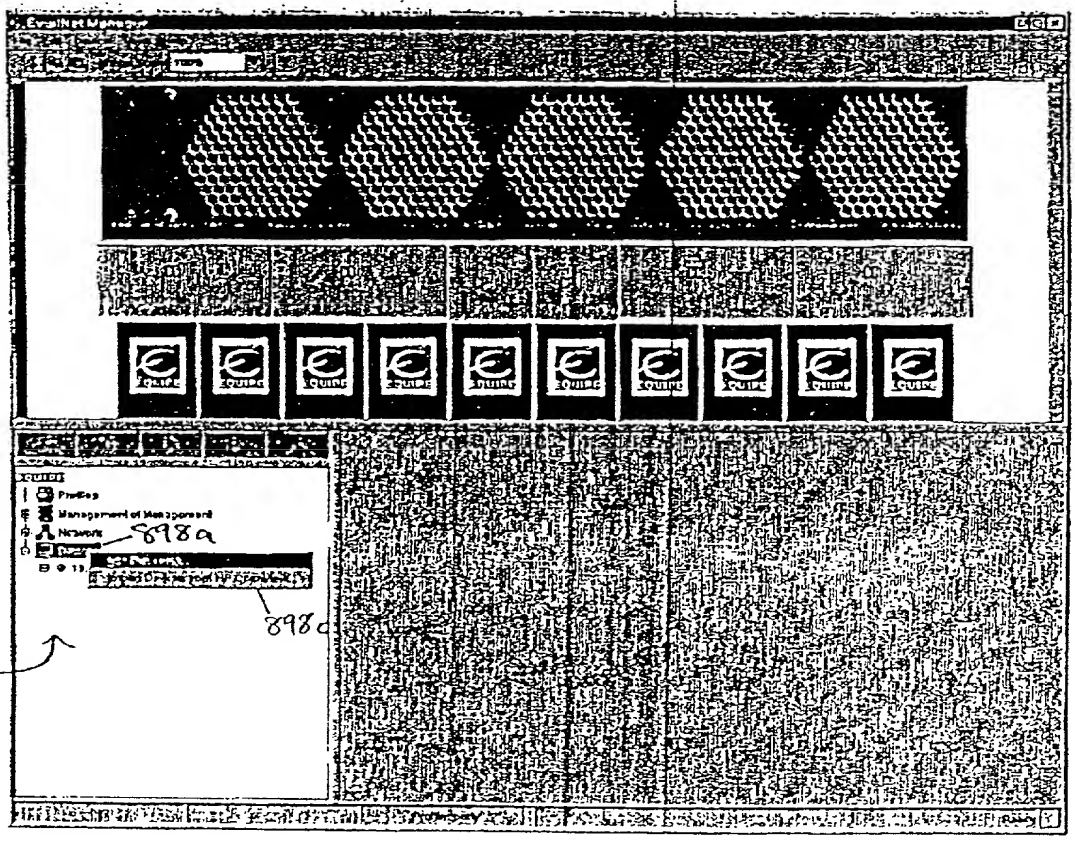


Fig. 6a

Fig. 6b

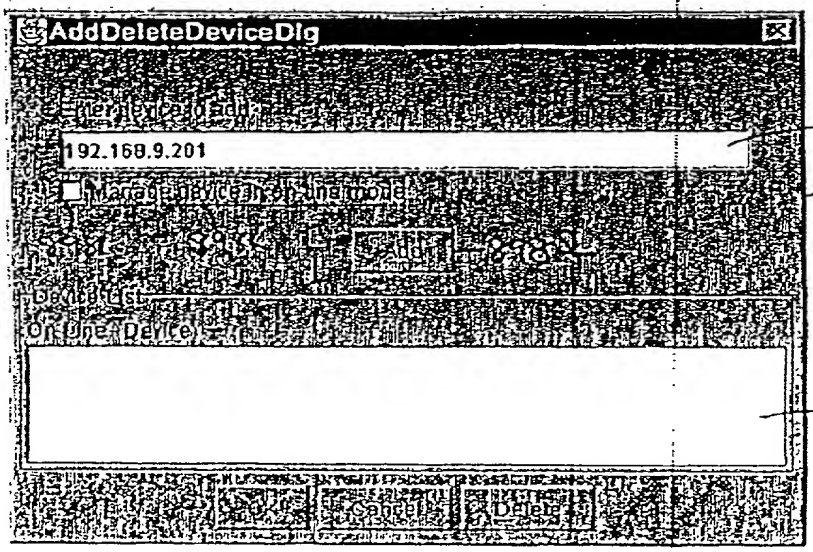
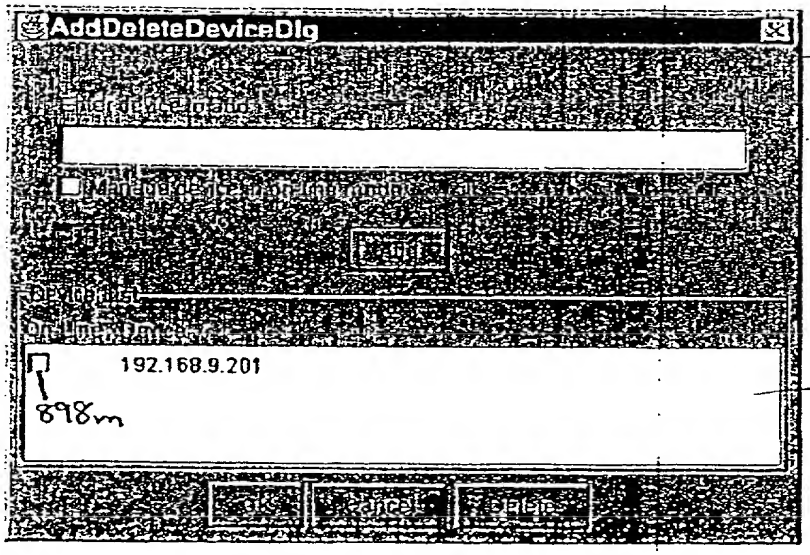

AddDeleteDeviceDlg
192.168.9.201
898e
898d
898g

Fig. 6c


AddDeleteDeviceDlg
898d
192.168.9.201
898m
898g

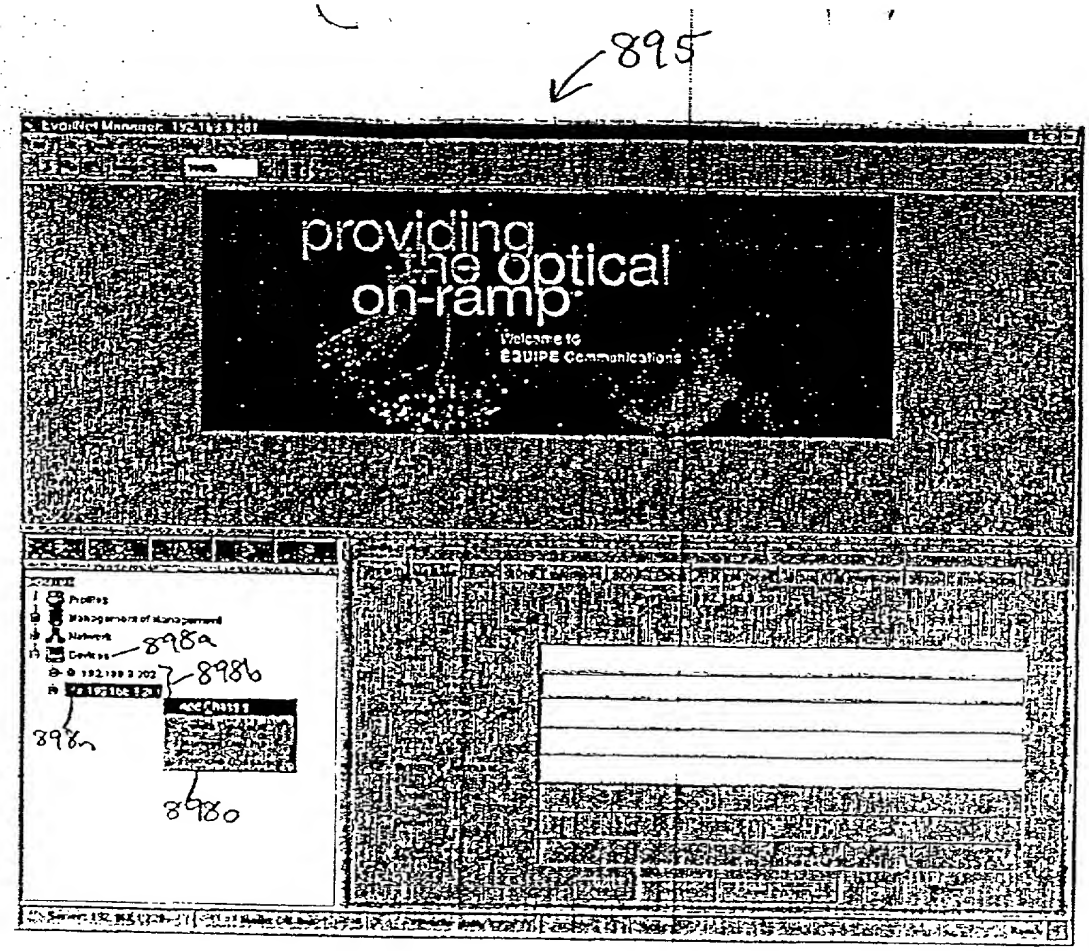

895
providing
the optical
on-ramp
Welcome to
EQUIPE Communications
898a
898b
898n
898o

Fig. 6d

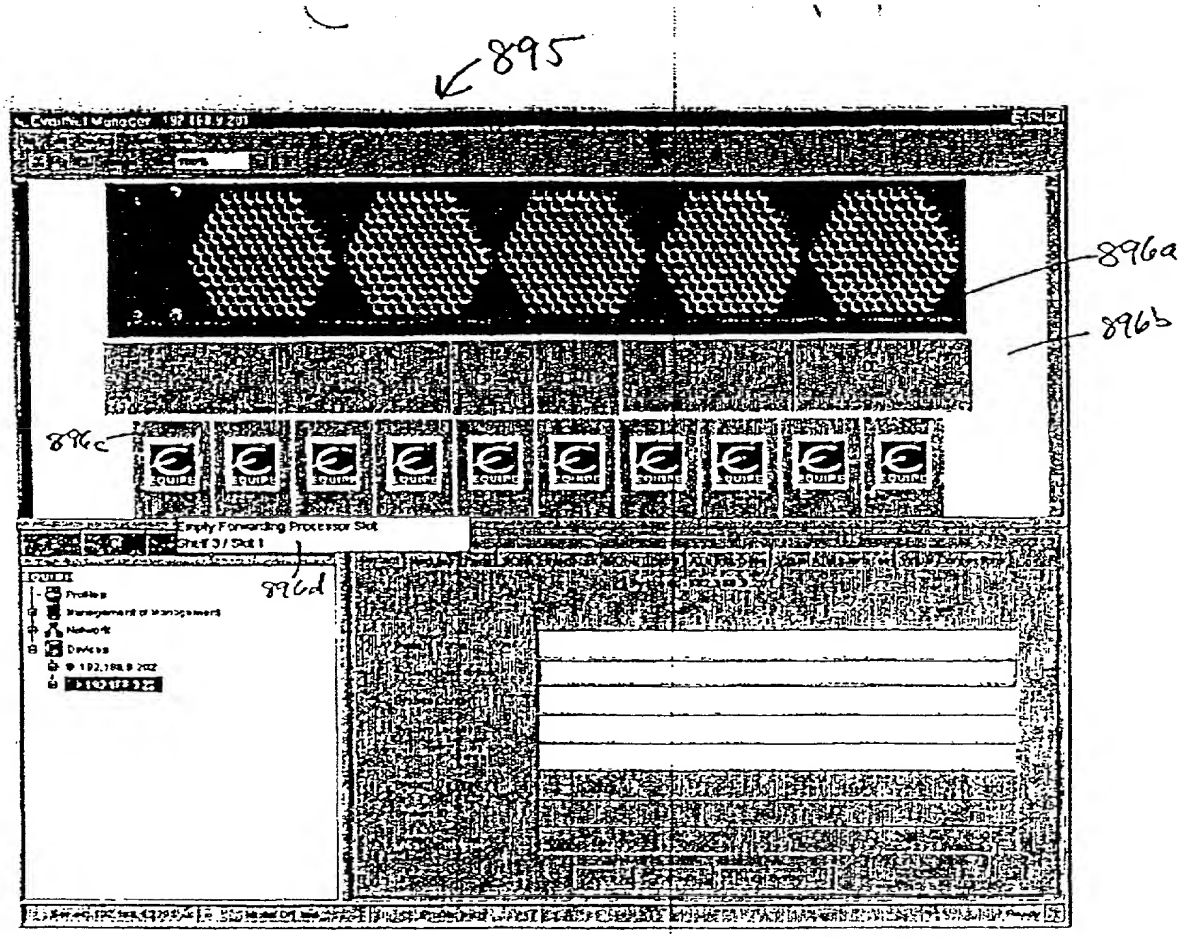


Fig. 6e

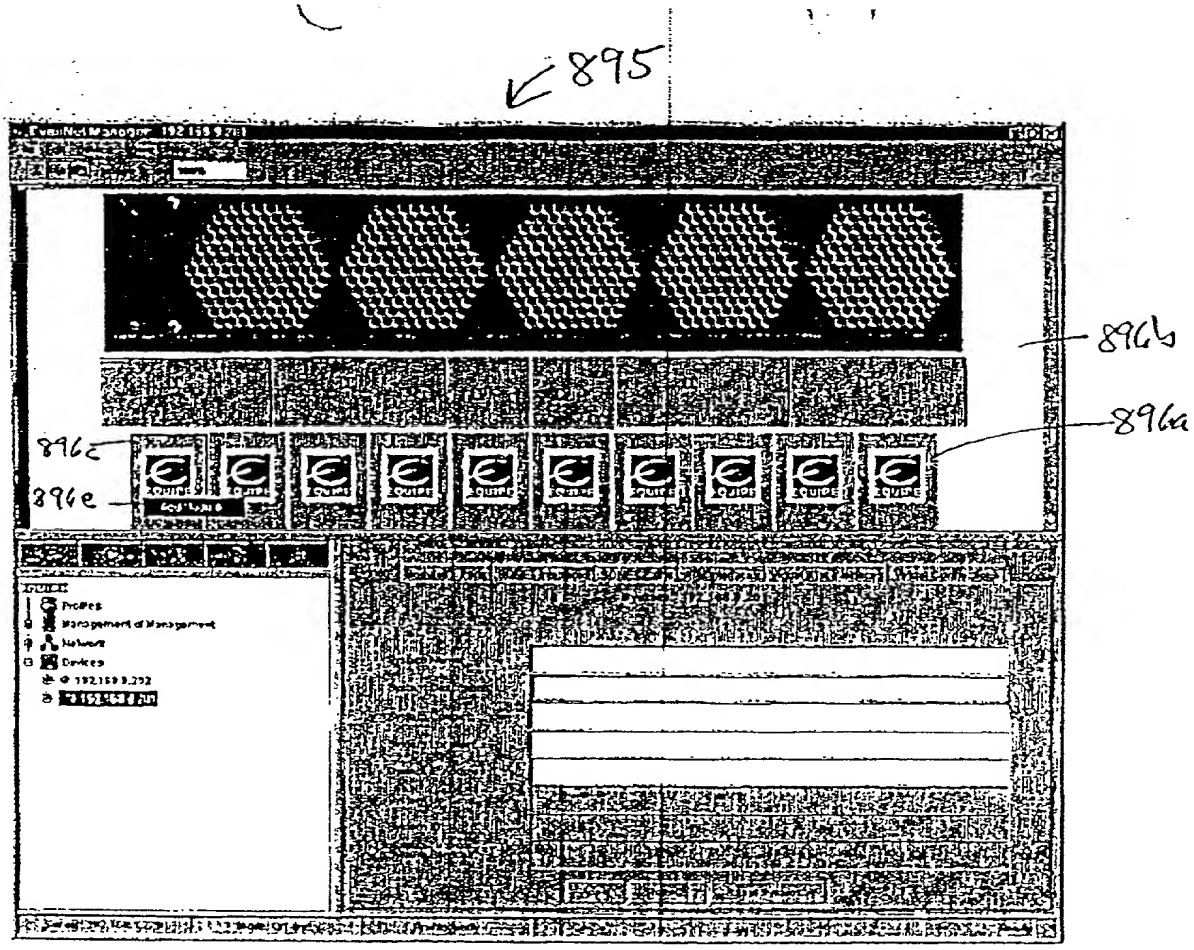


Fig. 6f

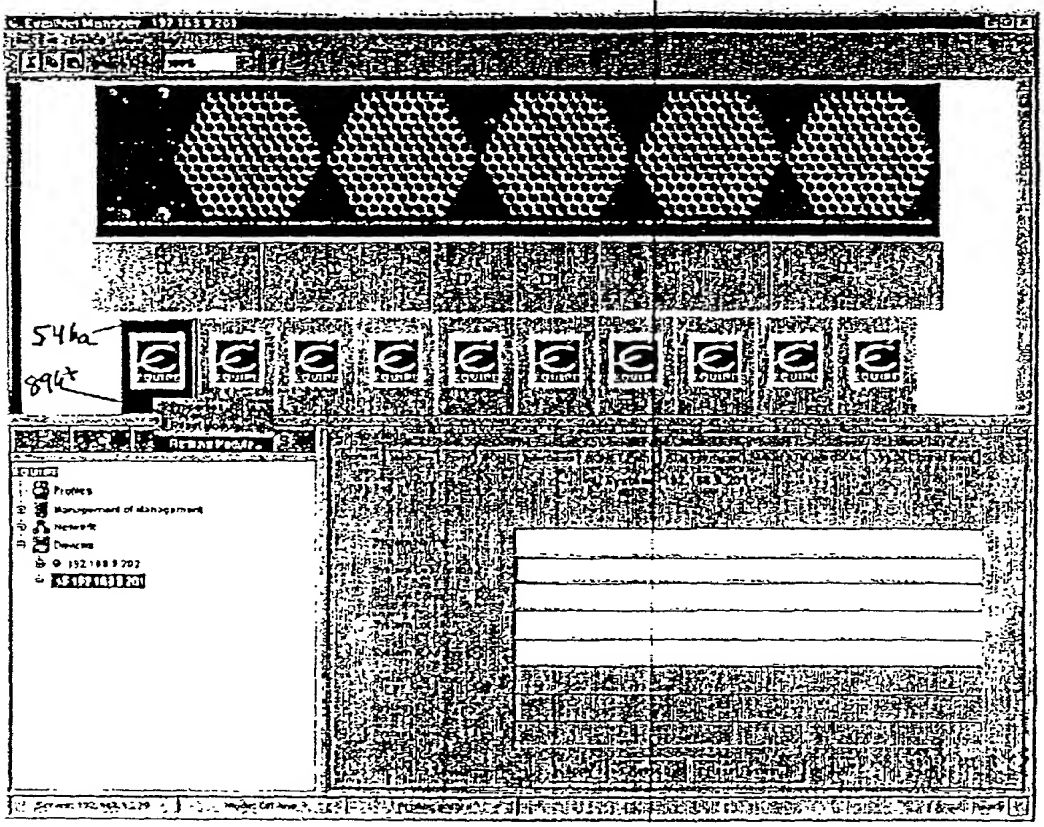


Fig. 6g

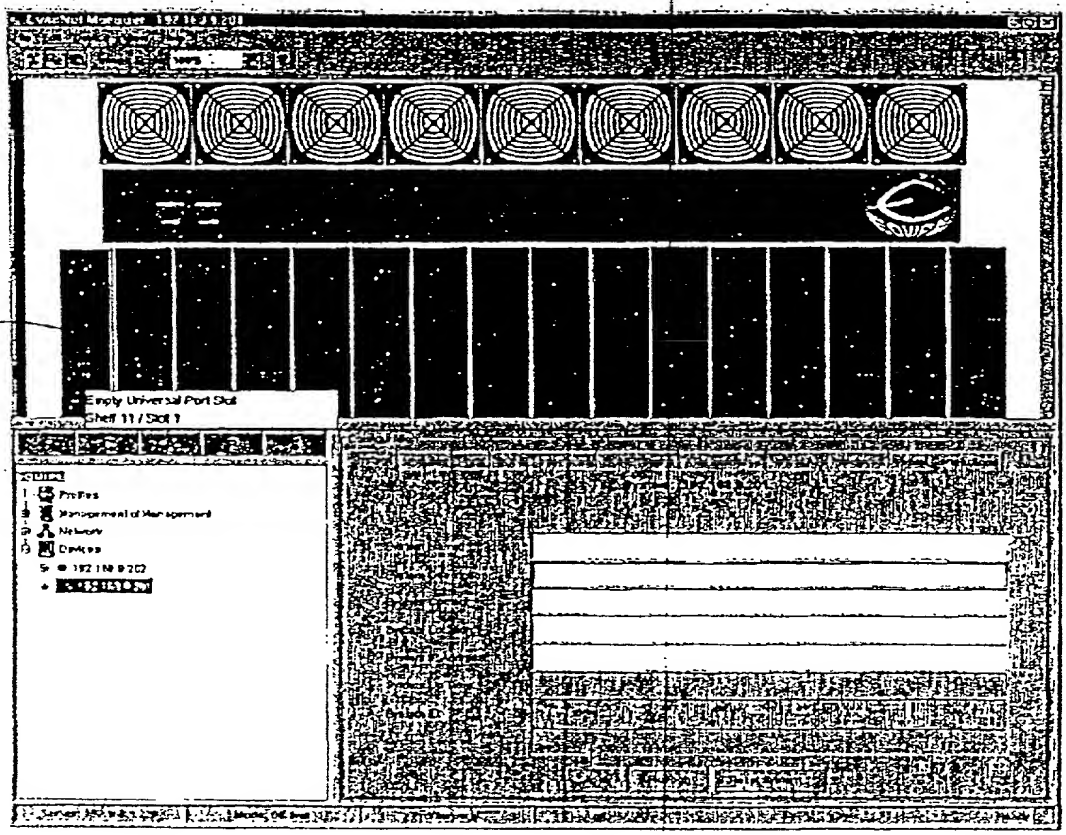


Fig.6h

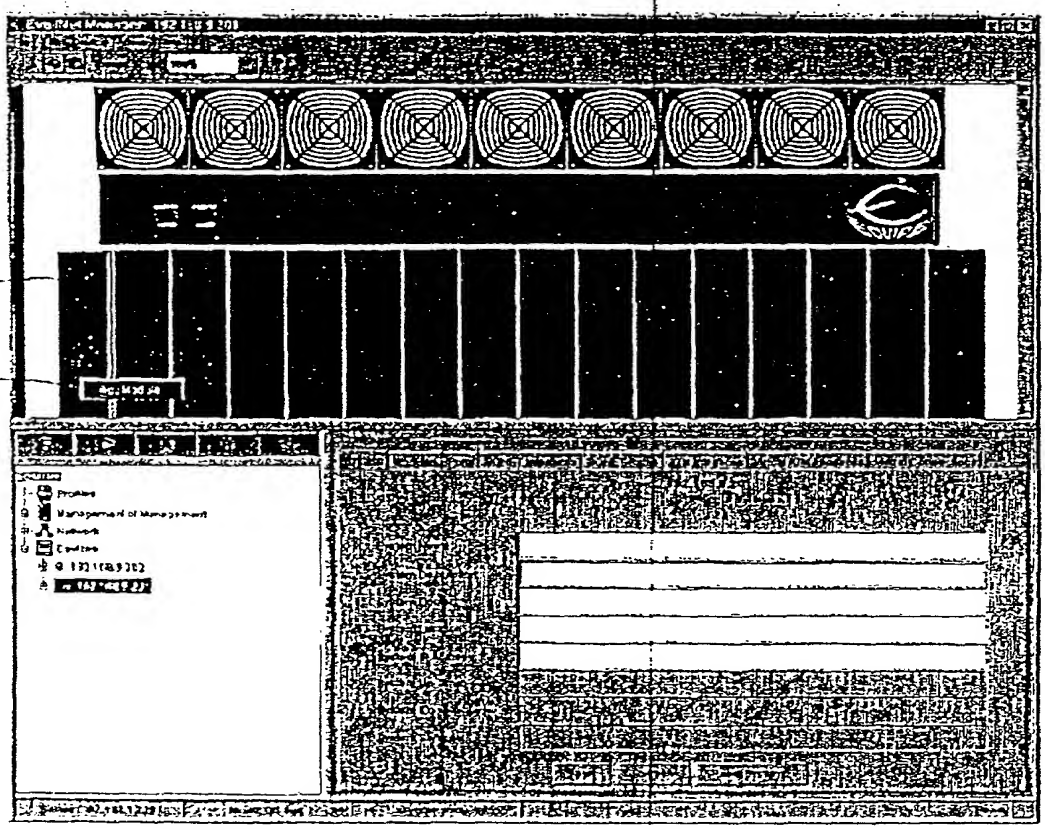
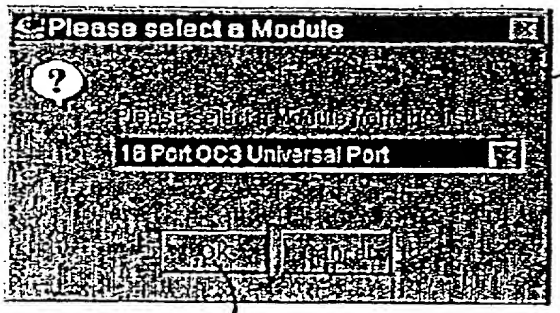


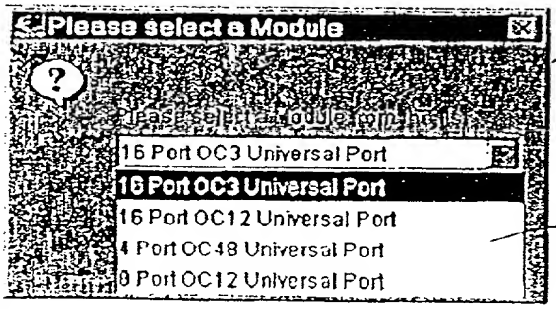
Fig. 6i

Fig. 6J



896h

896j



896h

896i

Fig. 6K

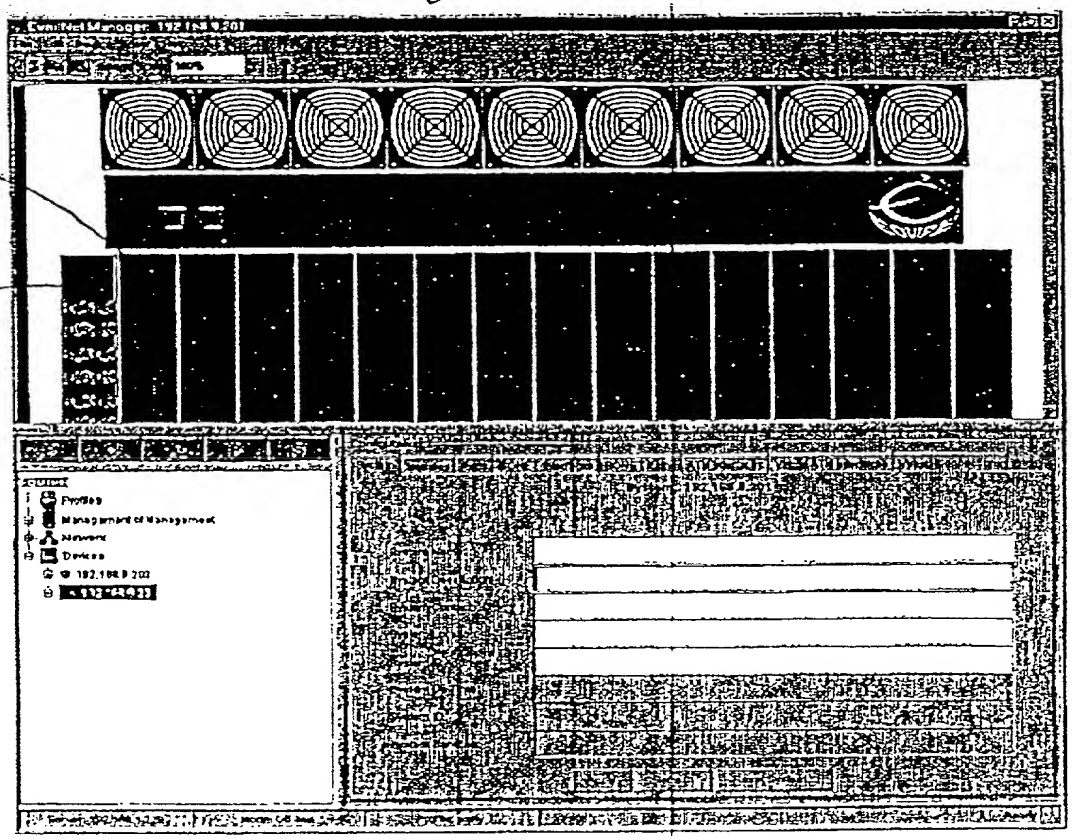


Fig. 6L

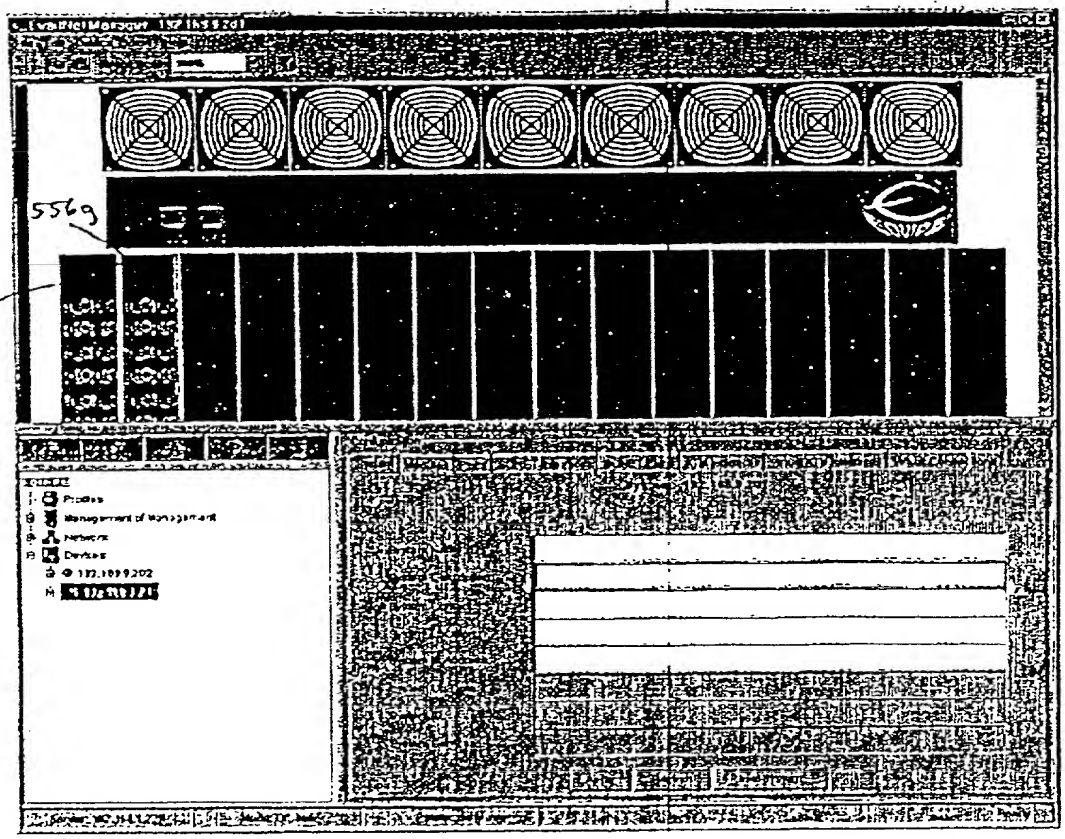


Fig.6m

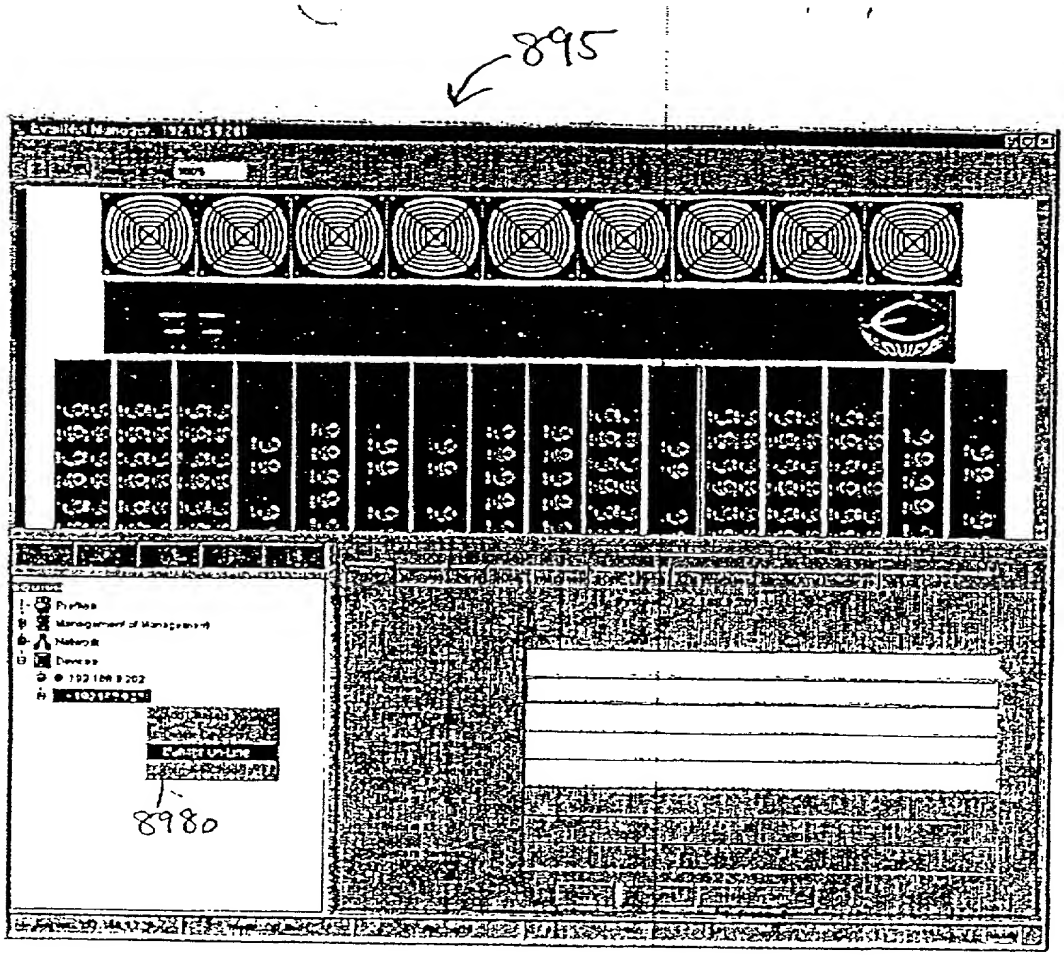


Fig. 6n

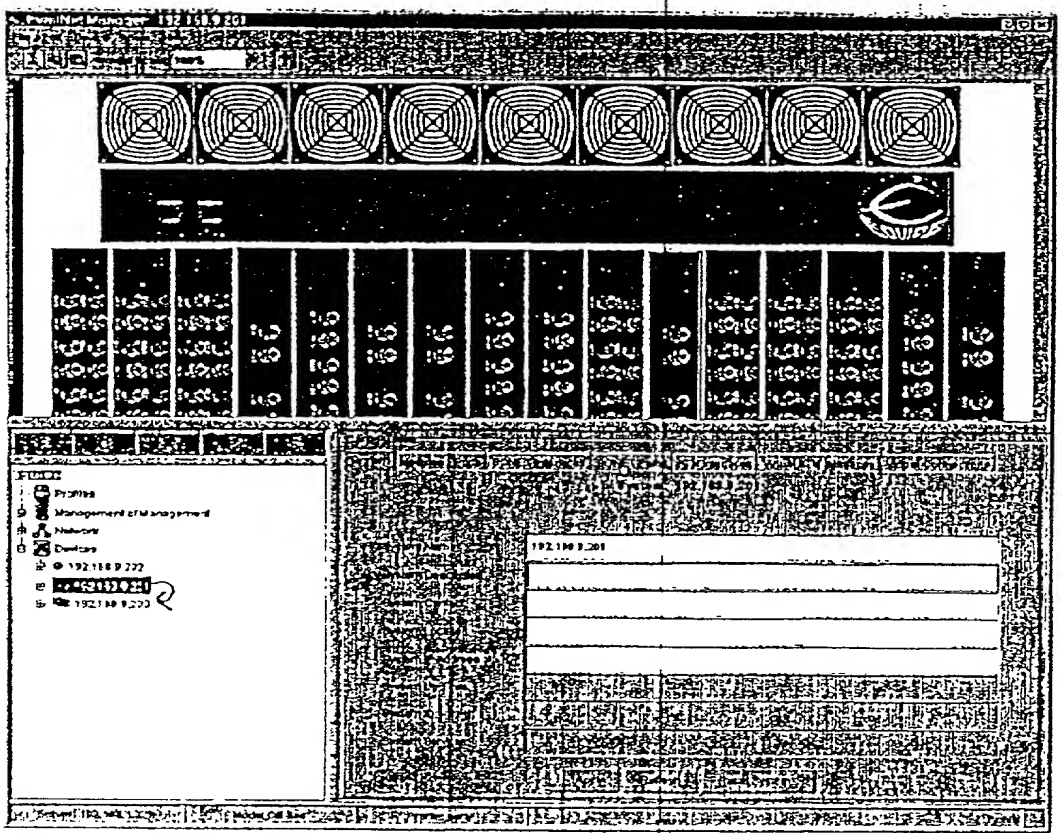


Fig. 6o

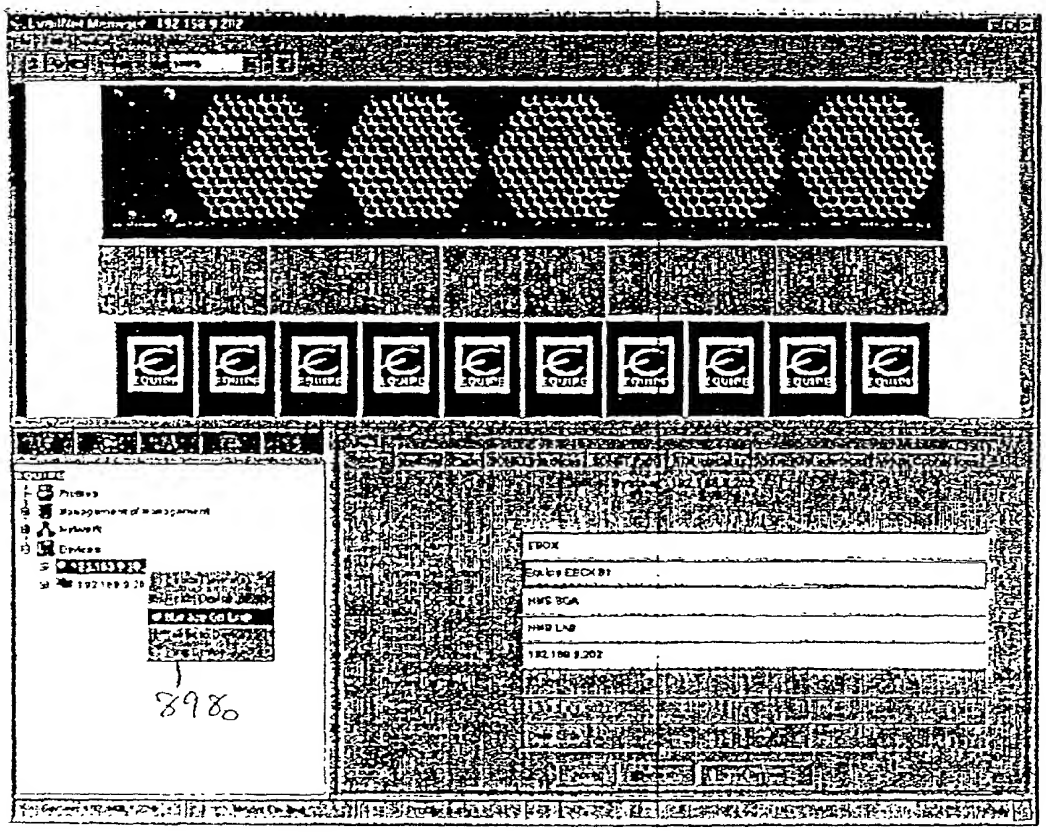


Fig. 6p

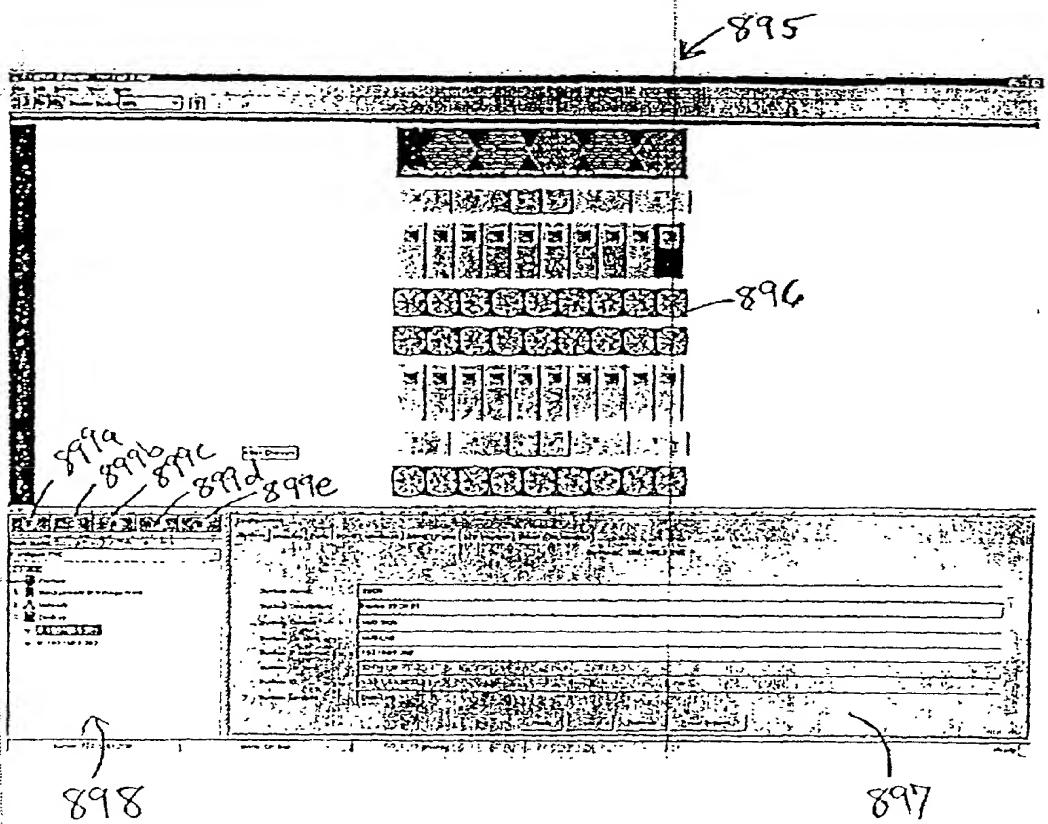
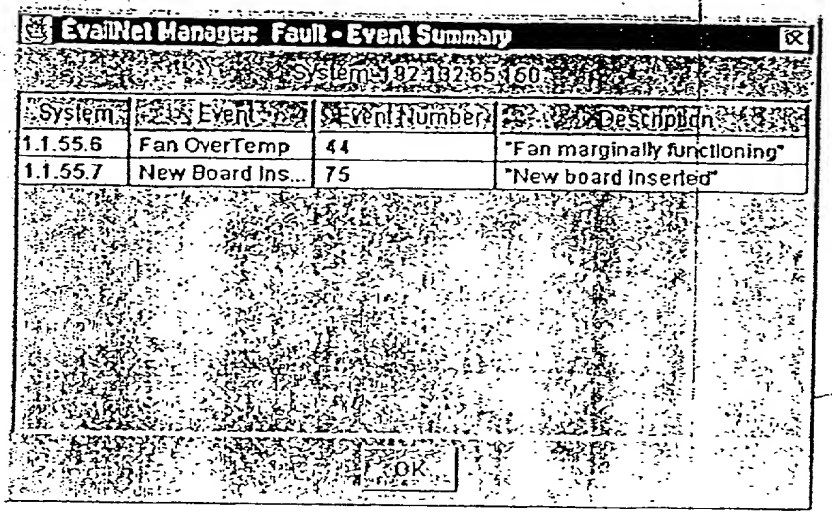


Fig. 7a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System 1.1.182.55.160
System
Event
Event Number
Description
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Fan OverTemp
44
"Fan marginally functioning"
1.1.55.7
New Board Ins...
75
"New board inserted"
OK

Fig. 7b

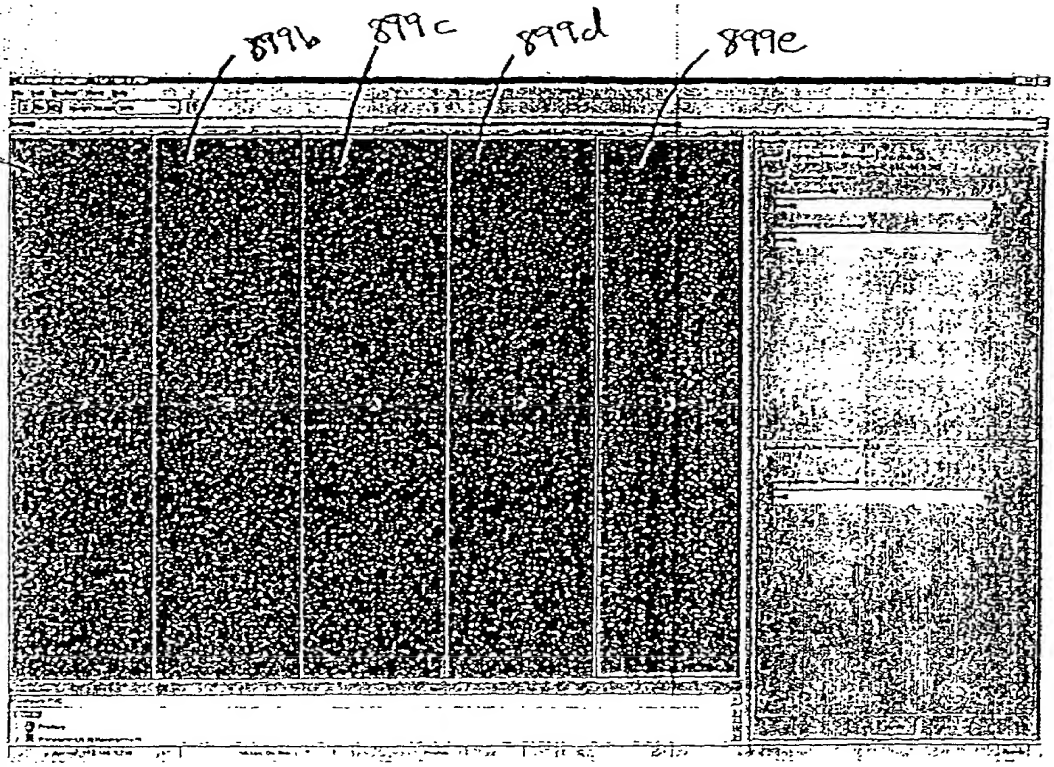


Fig.7c

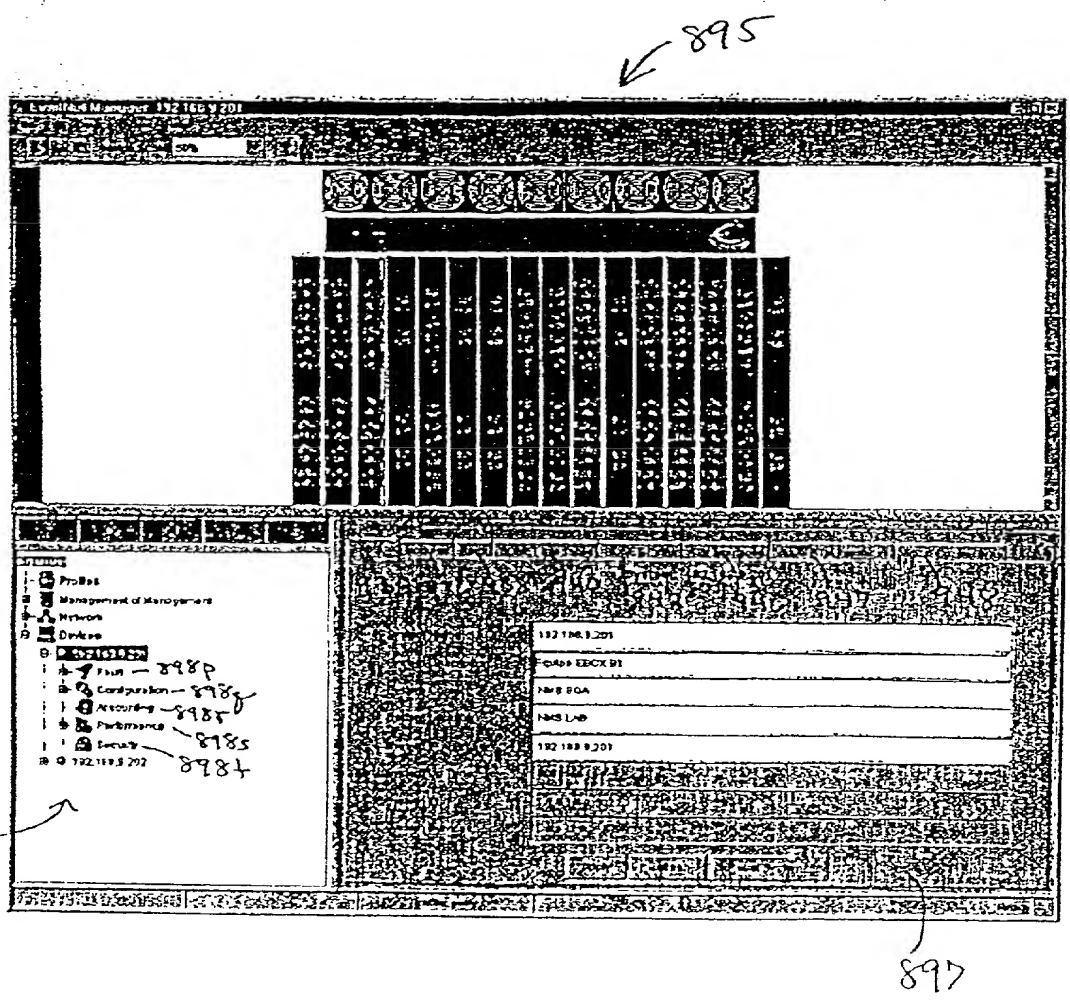


Fig. 7d

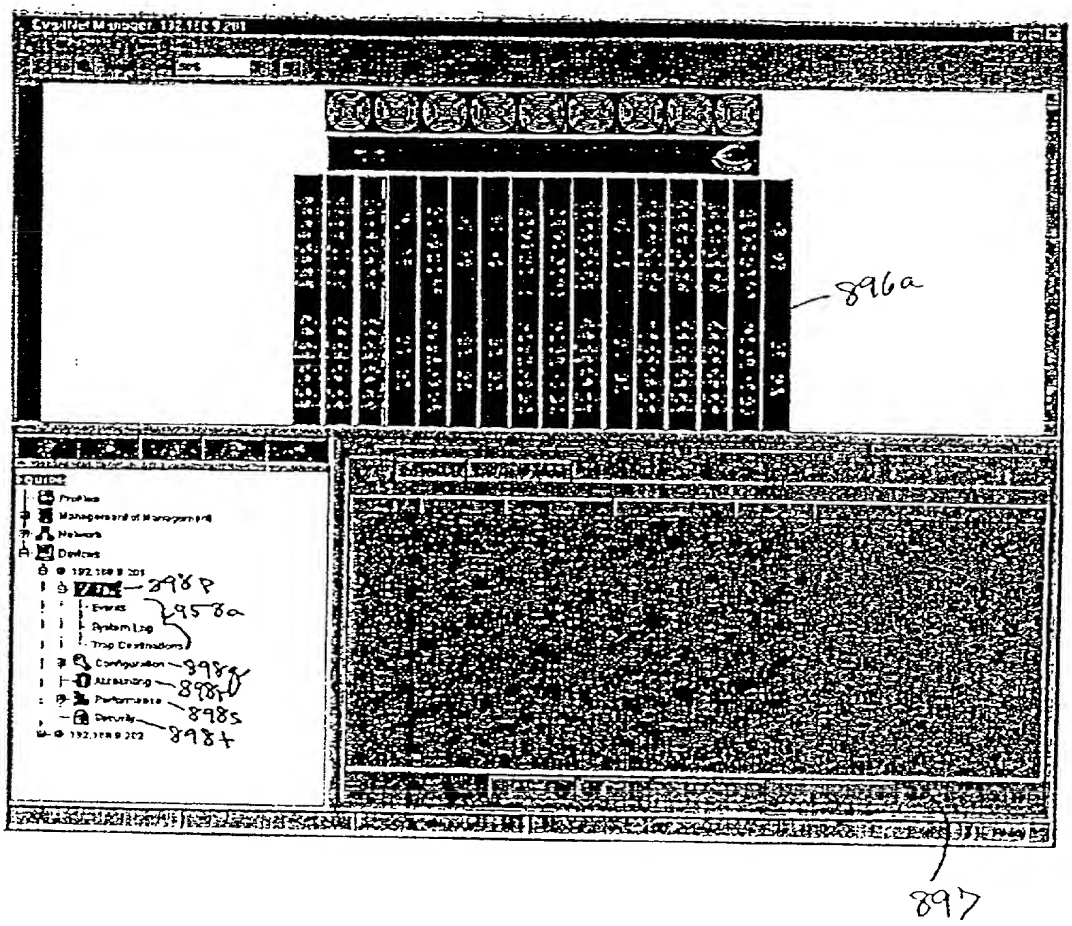
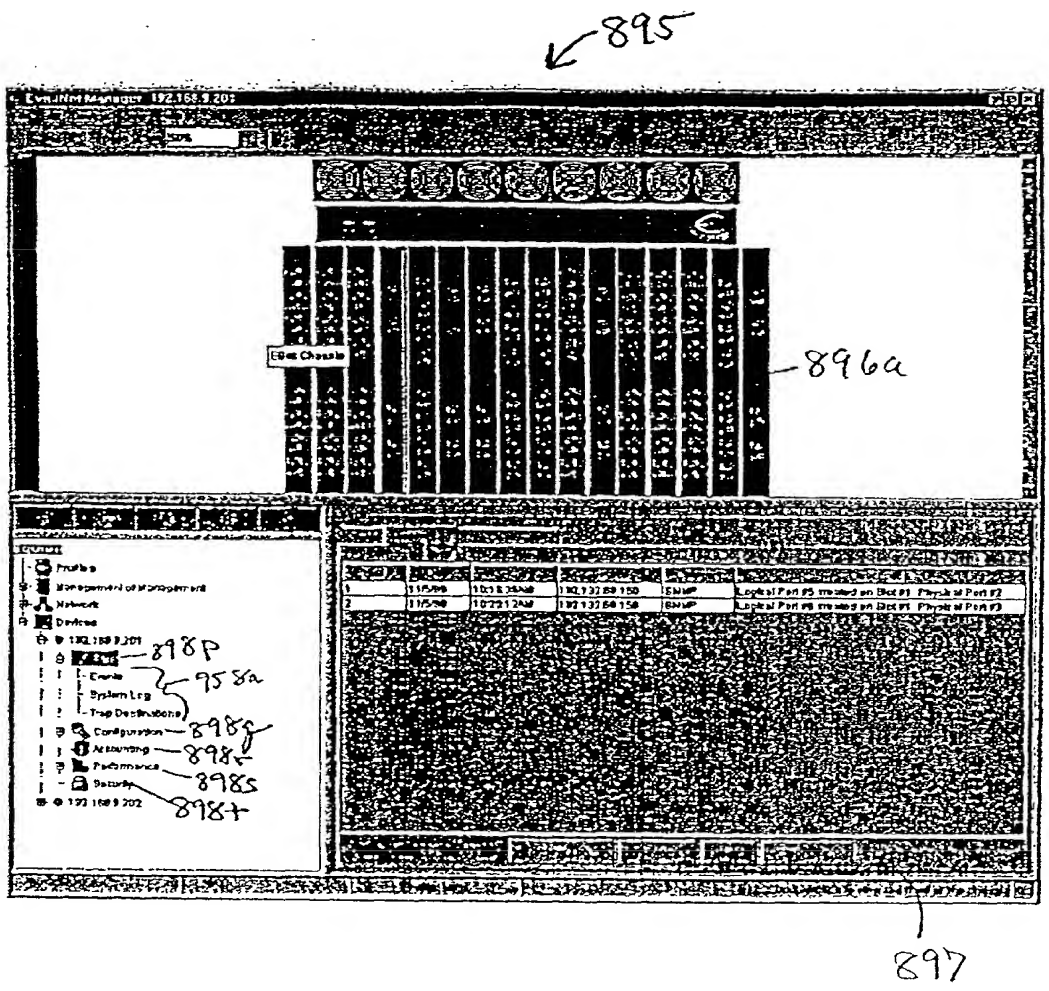


Fig. 7e



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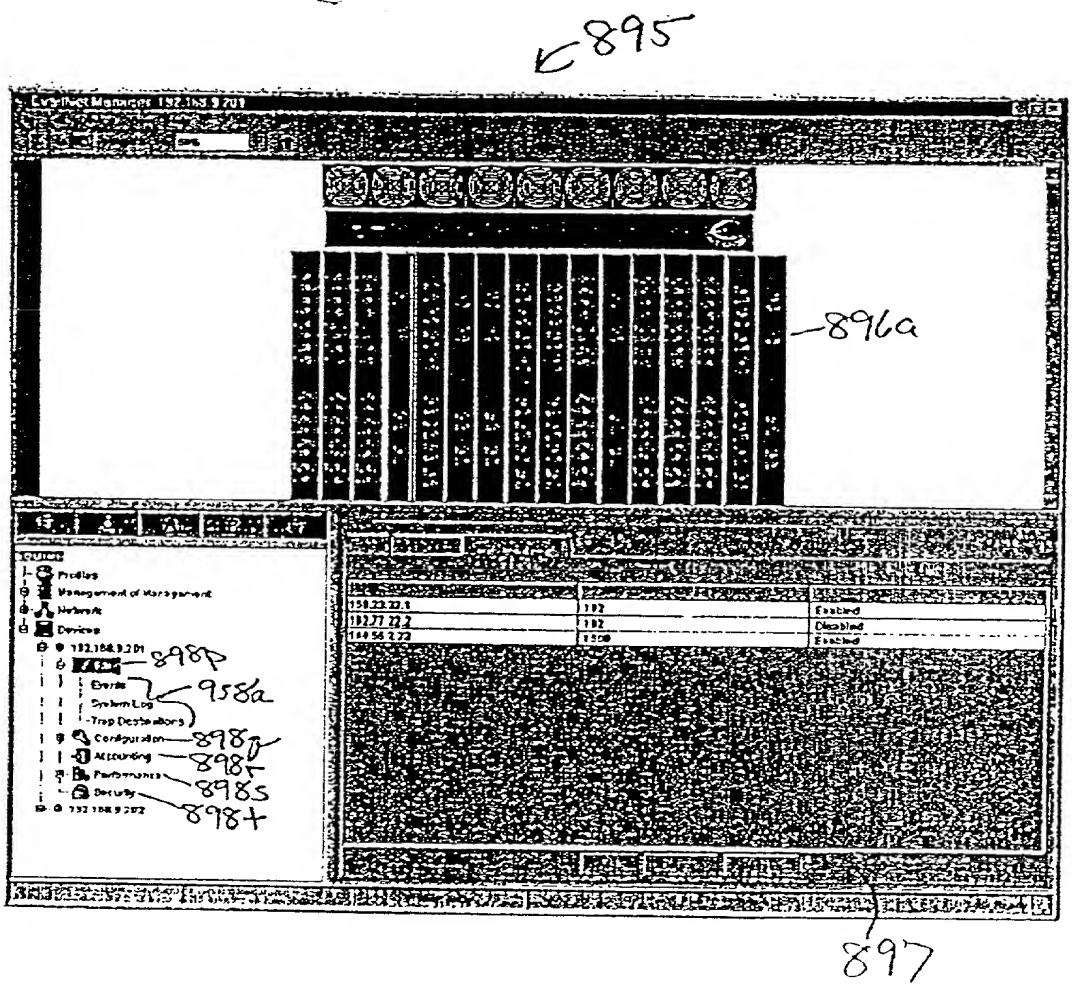

Fig. 7g

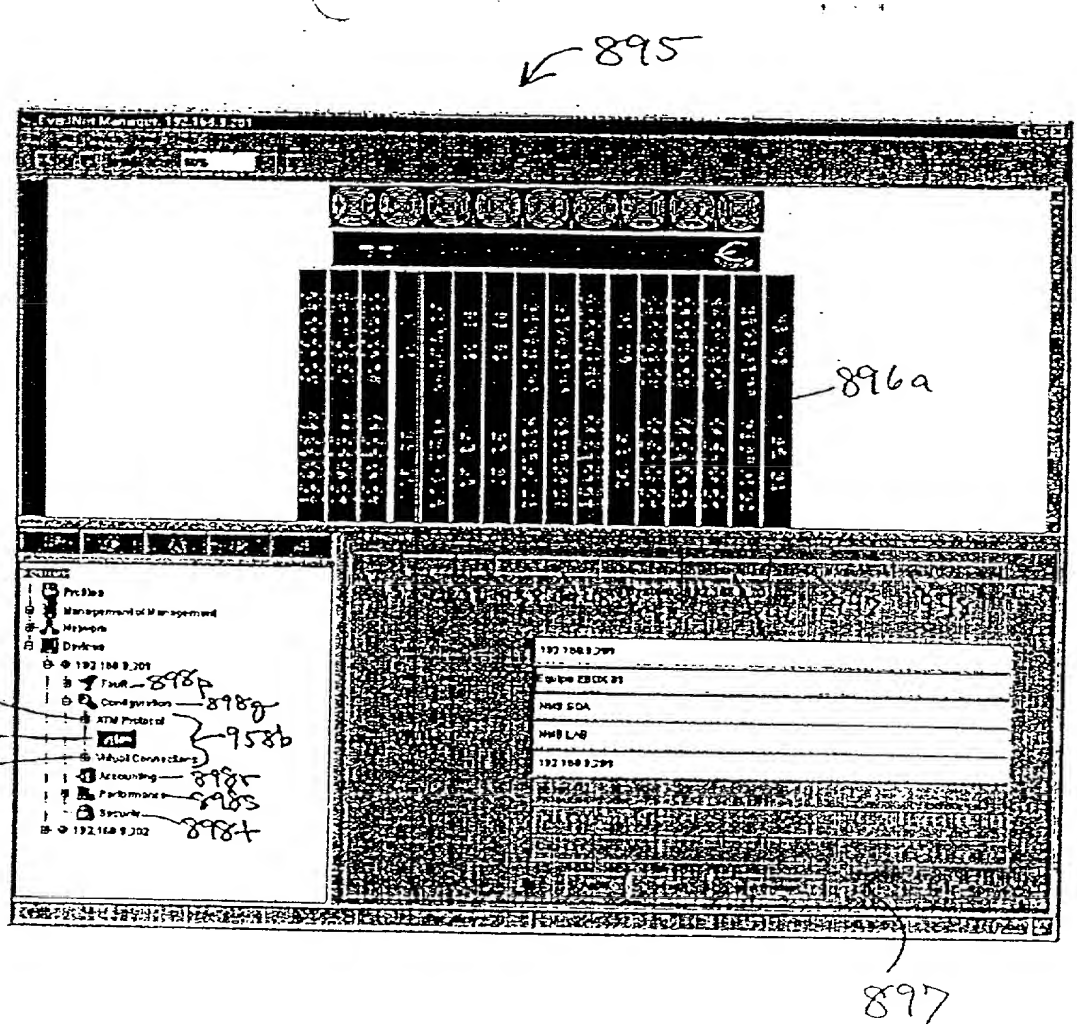

Fig. 7h

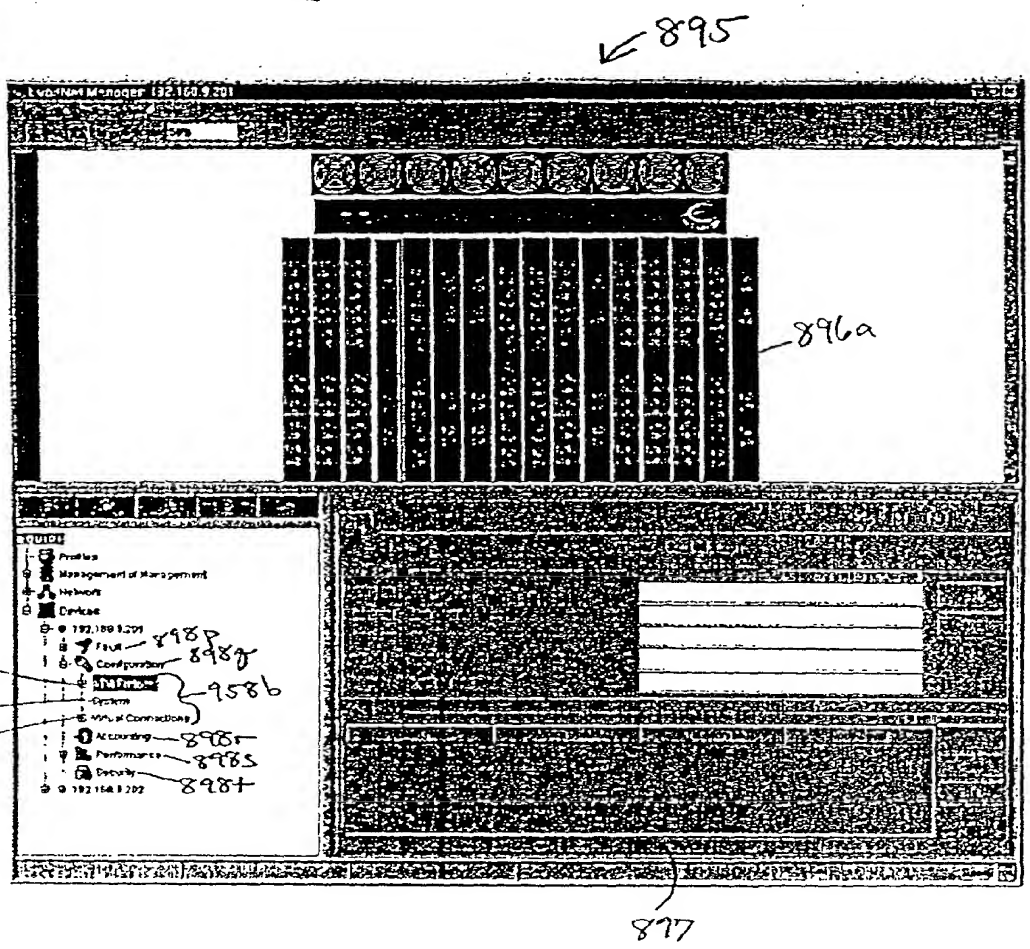

Fig 7i

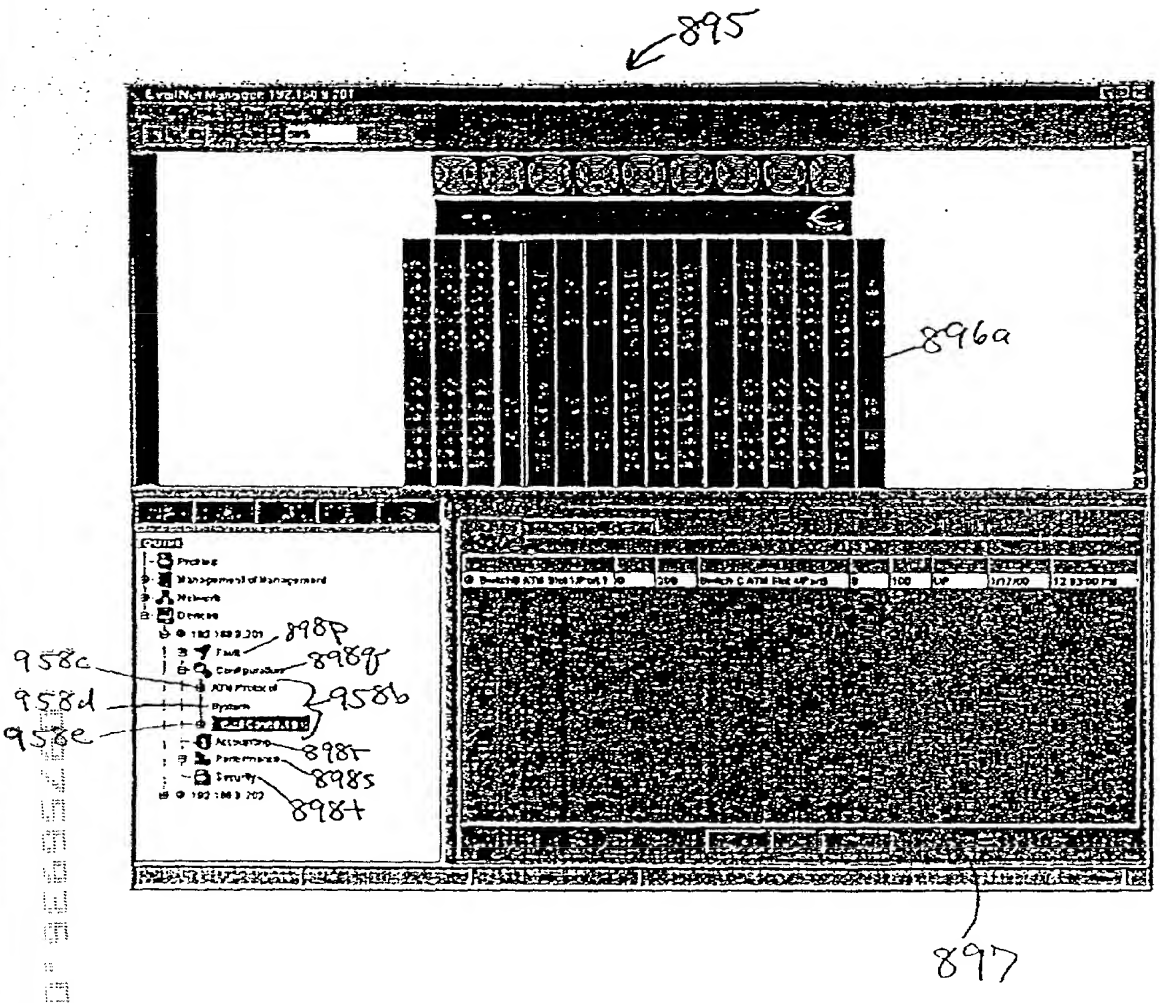

Fig. 7j

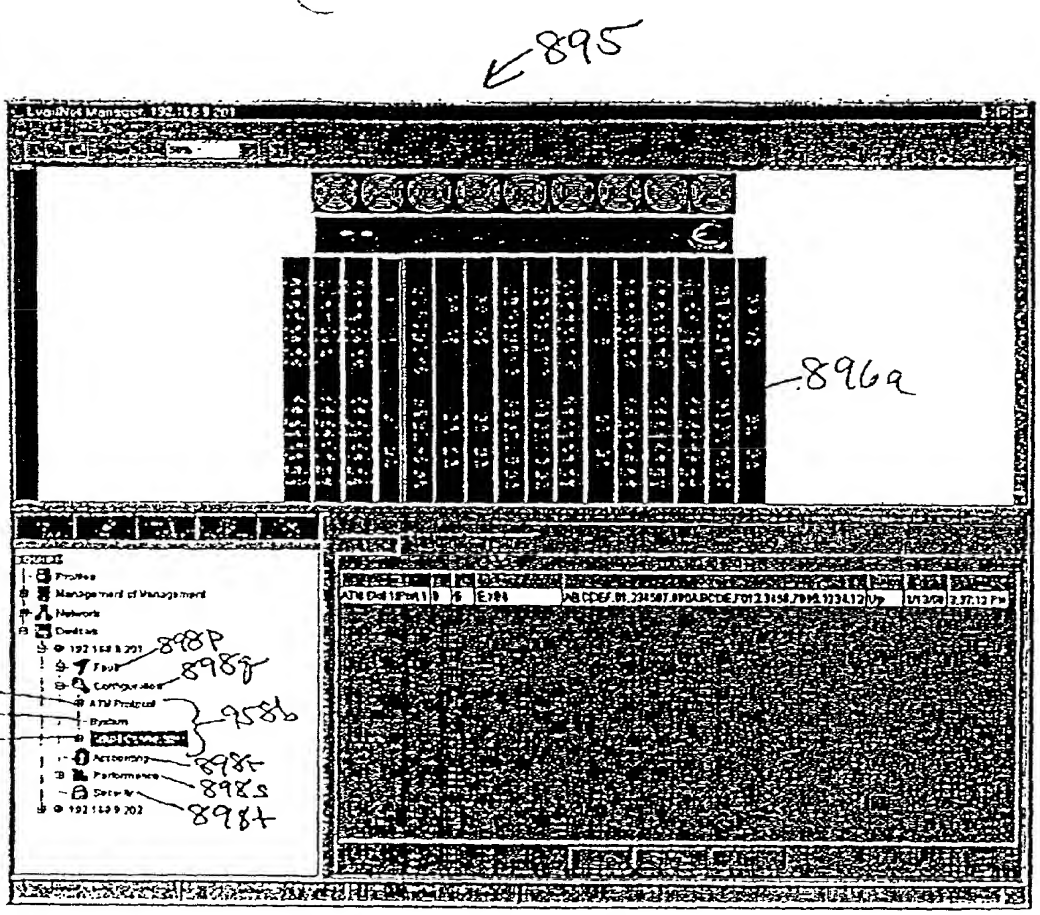

Fig. 7K

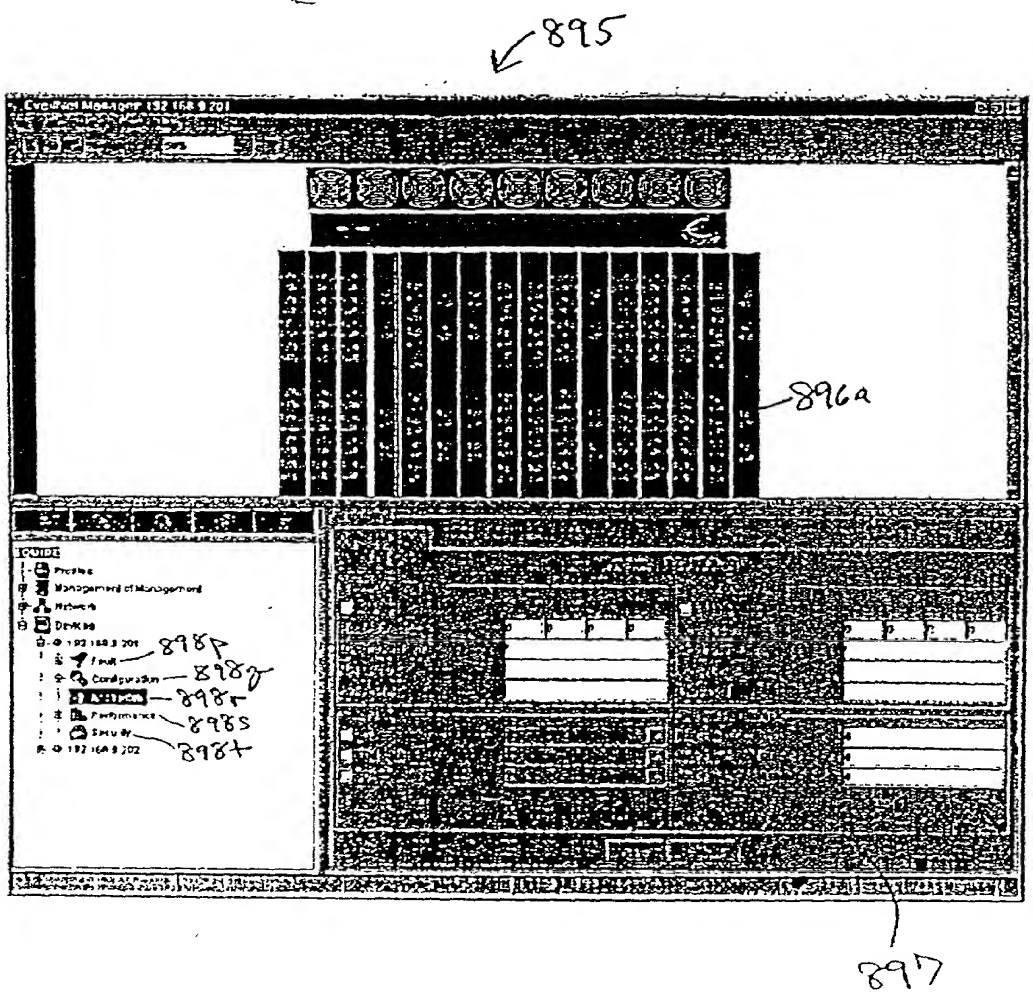

Fig. 7L

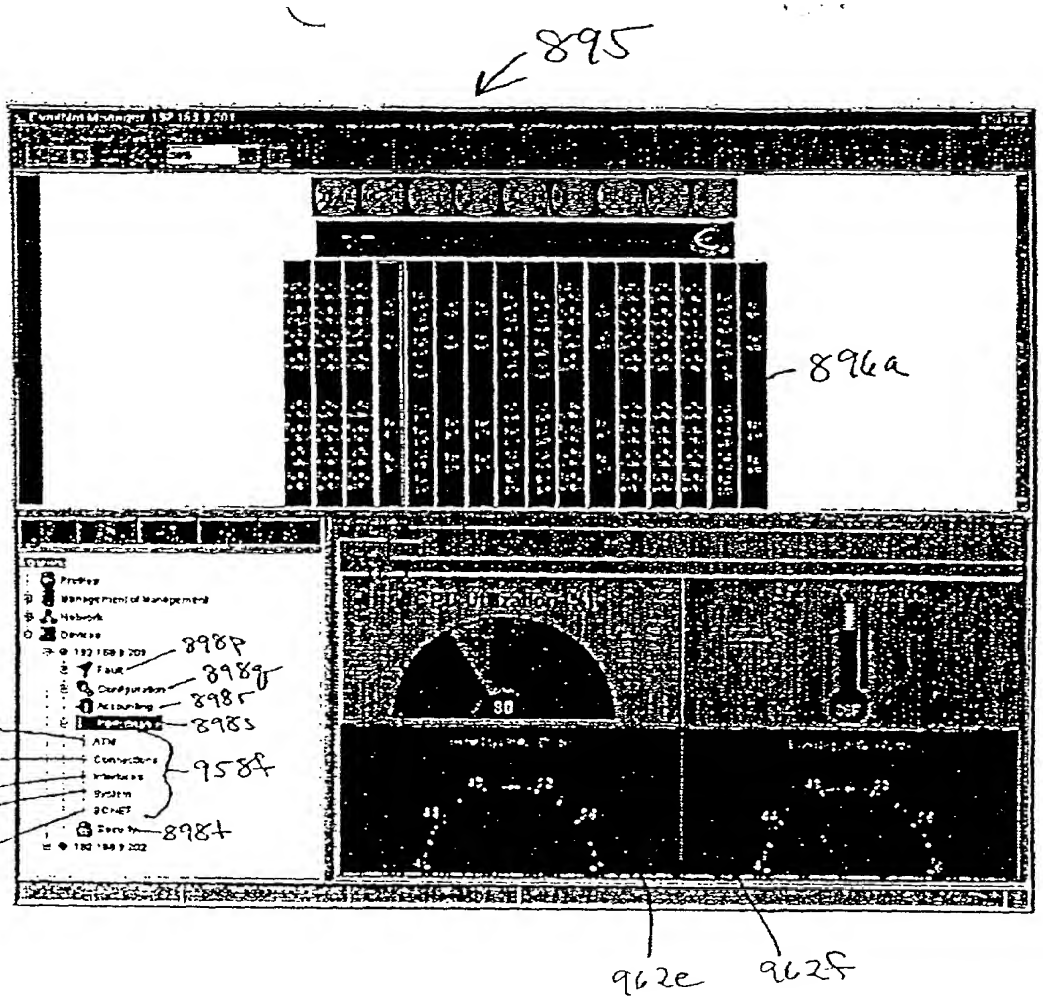
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Fig. 7m

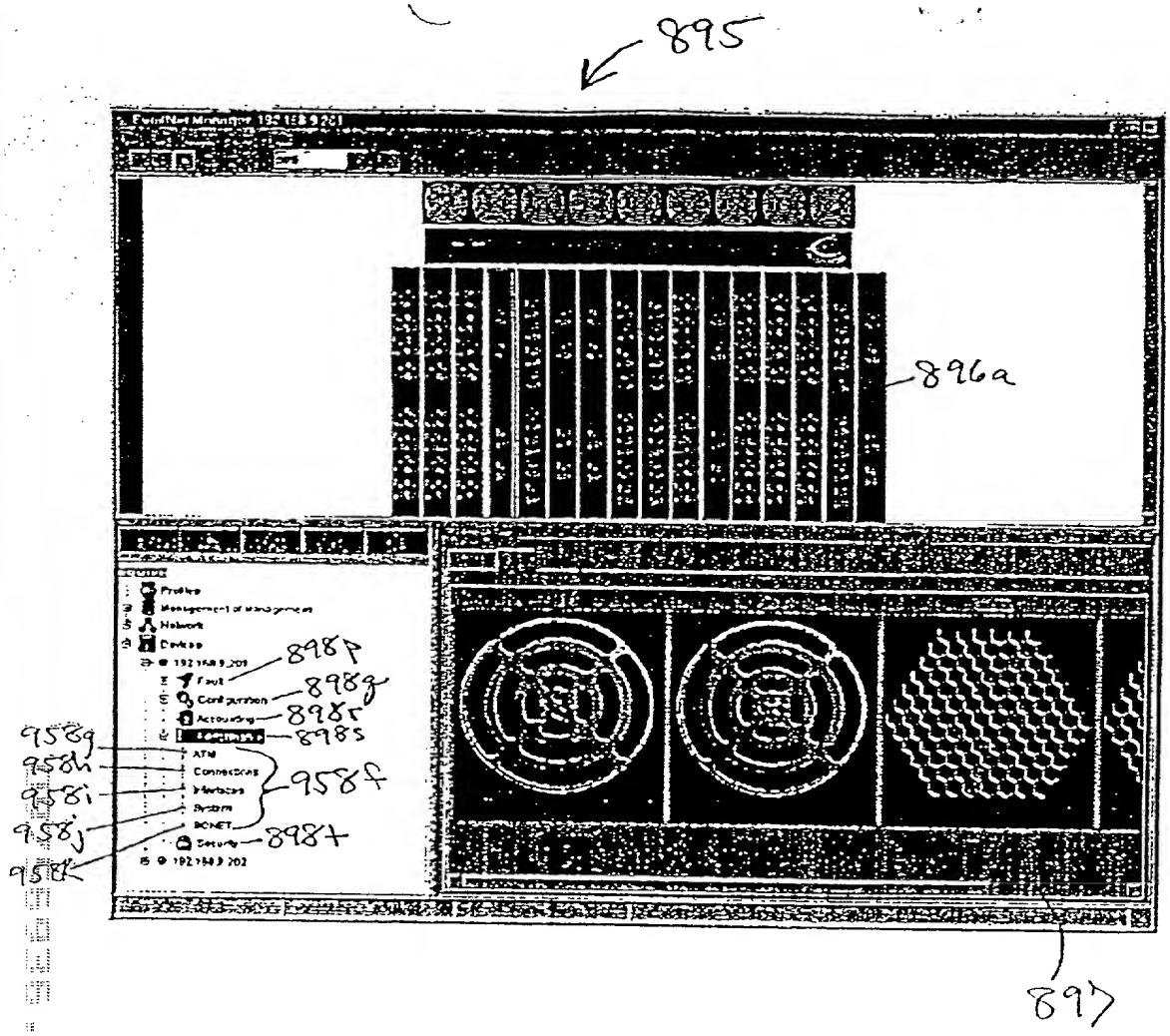
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Fig. 7n

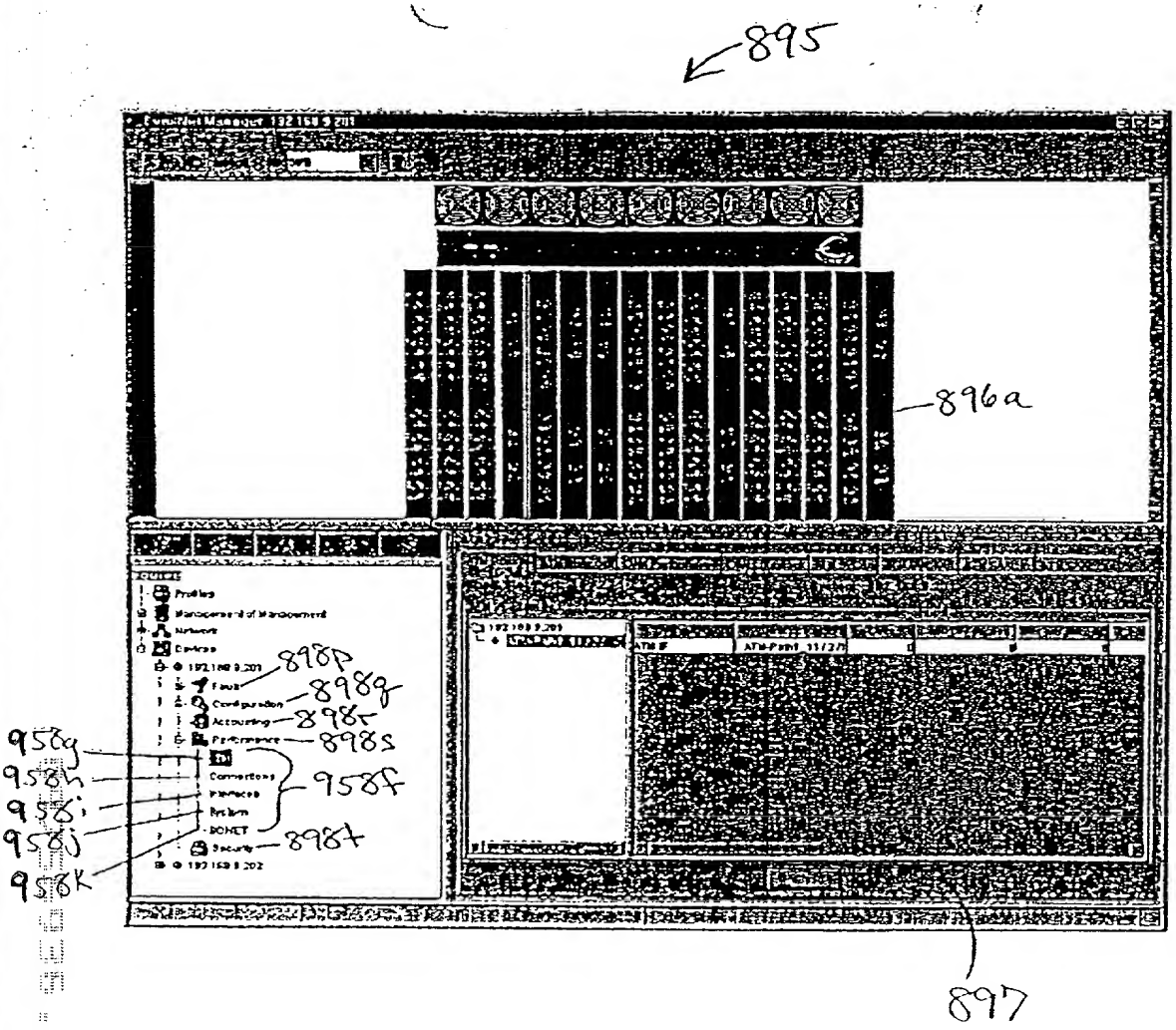
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Fig. 7o

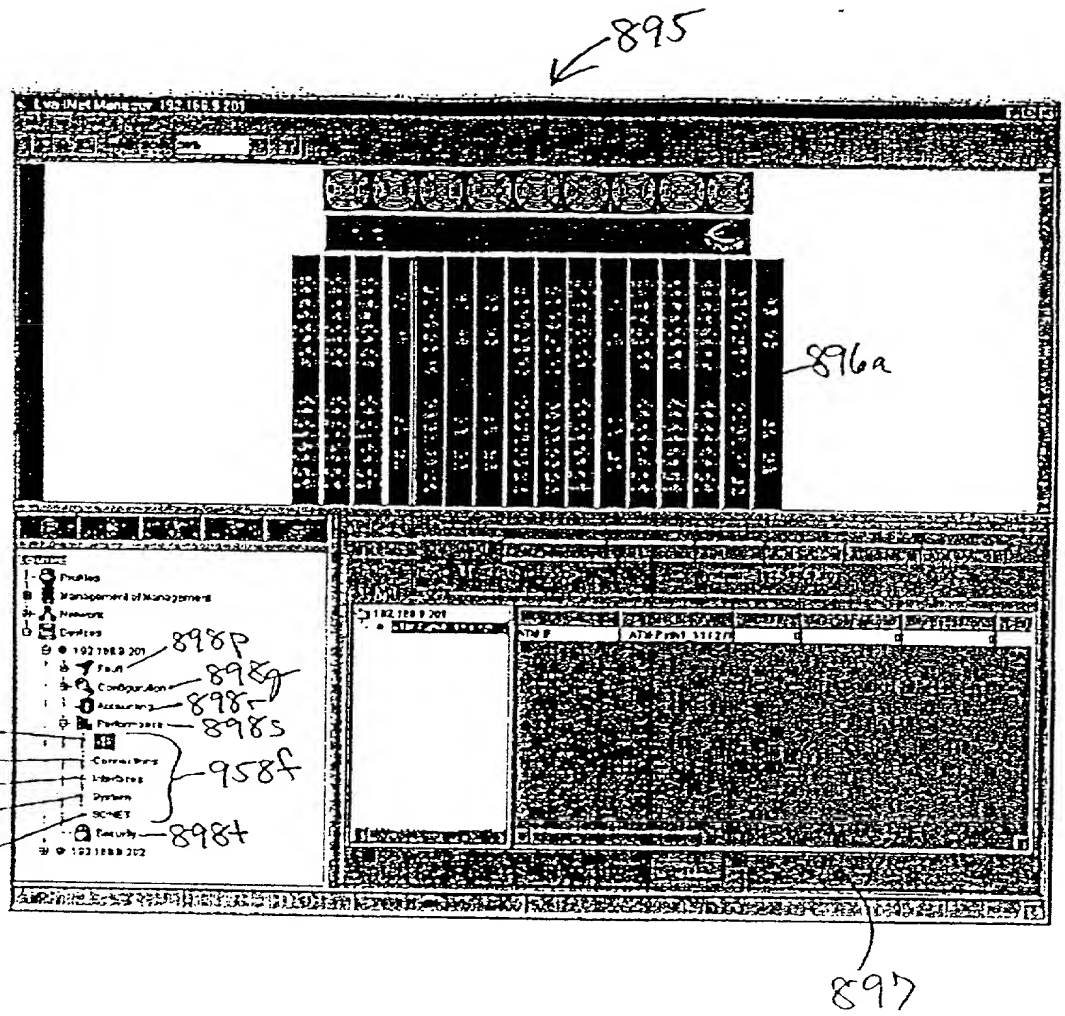
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Fig. 7p

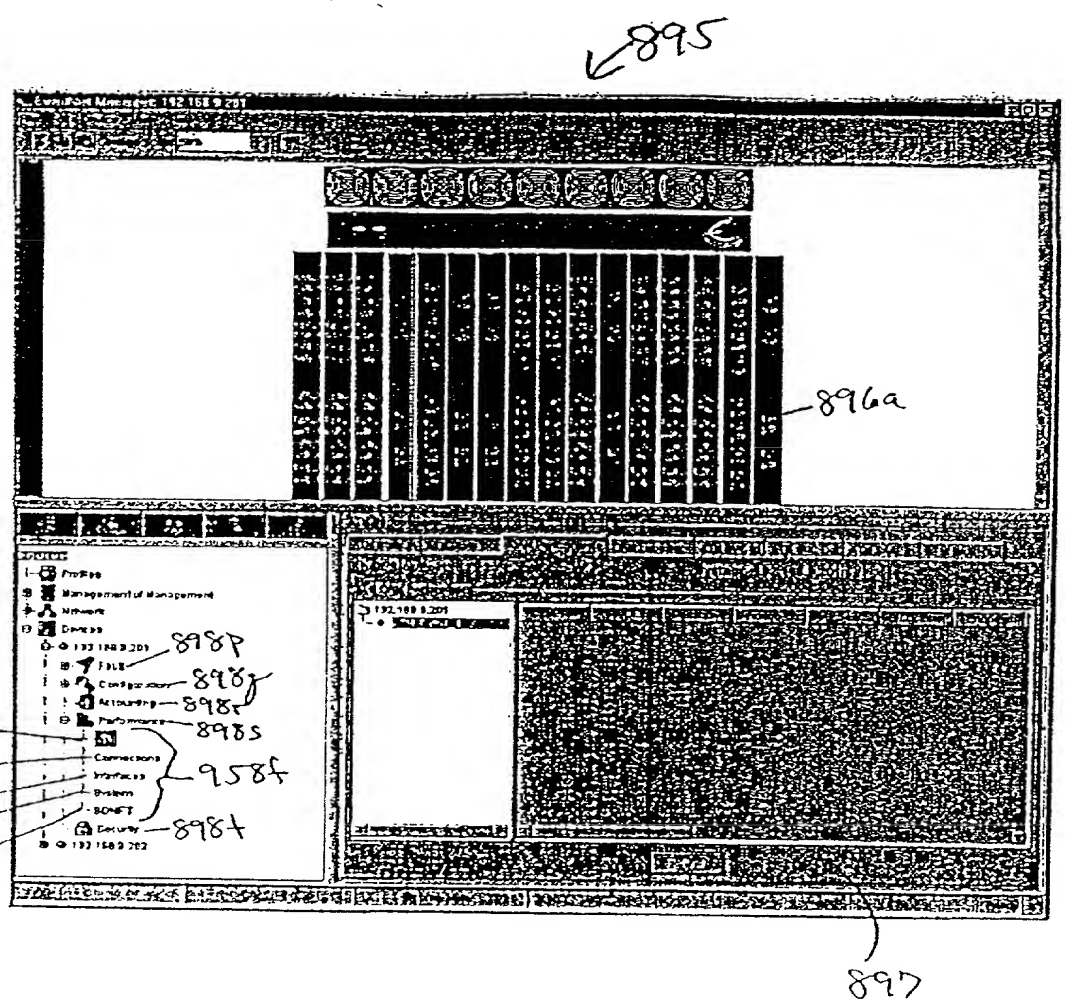
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Fig. 7g

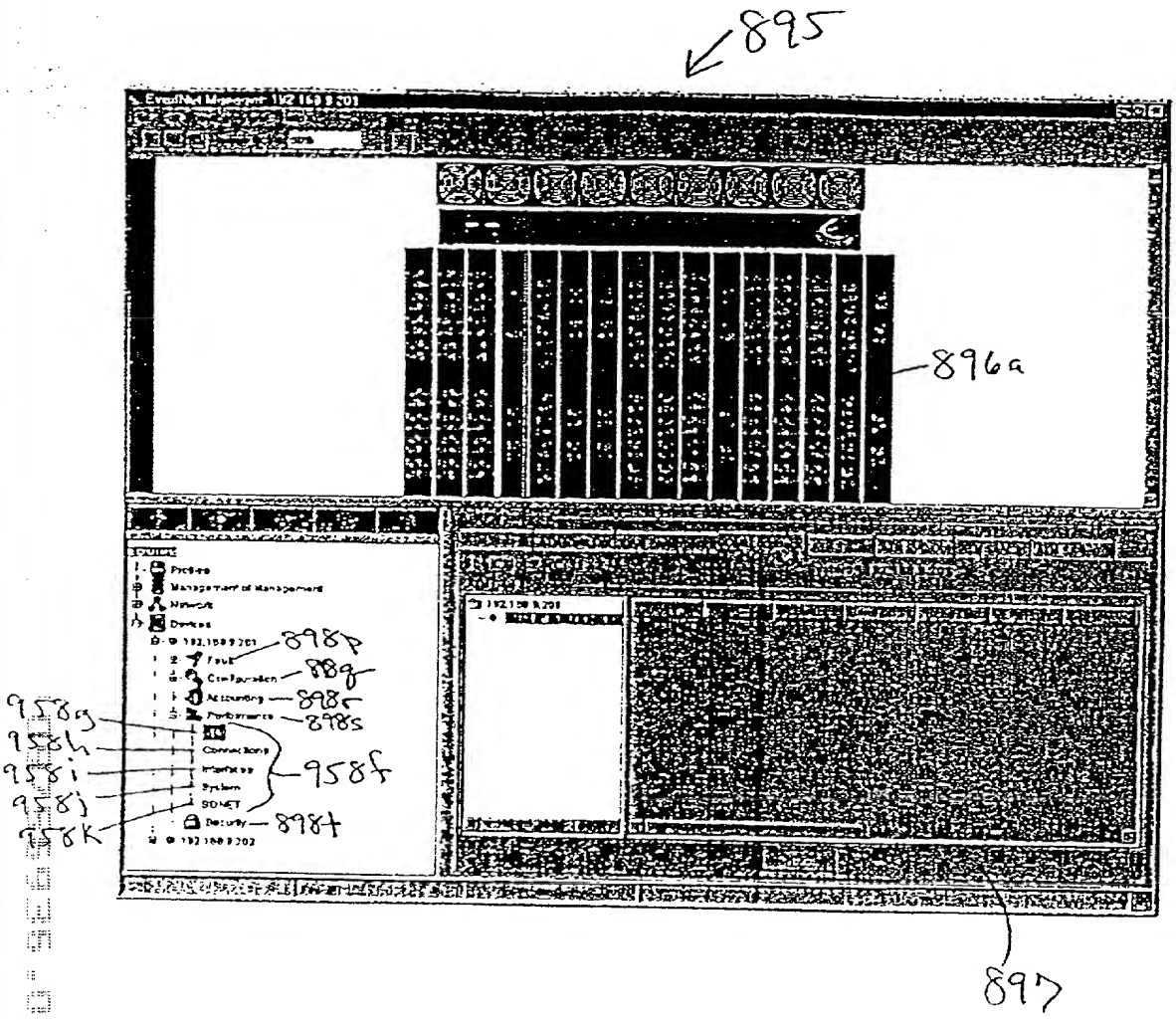
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Fig. 7F

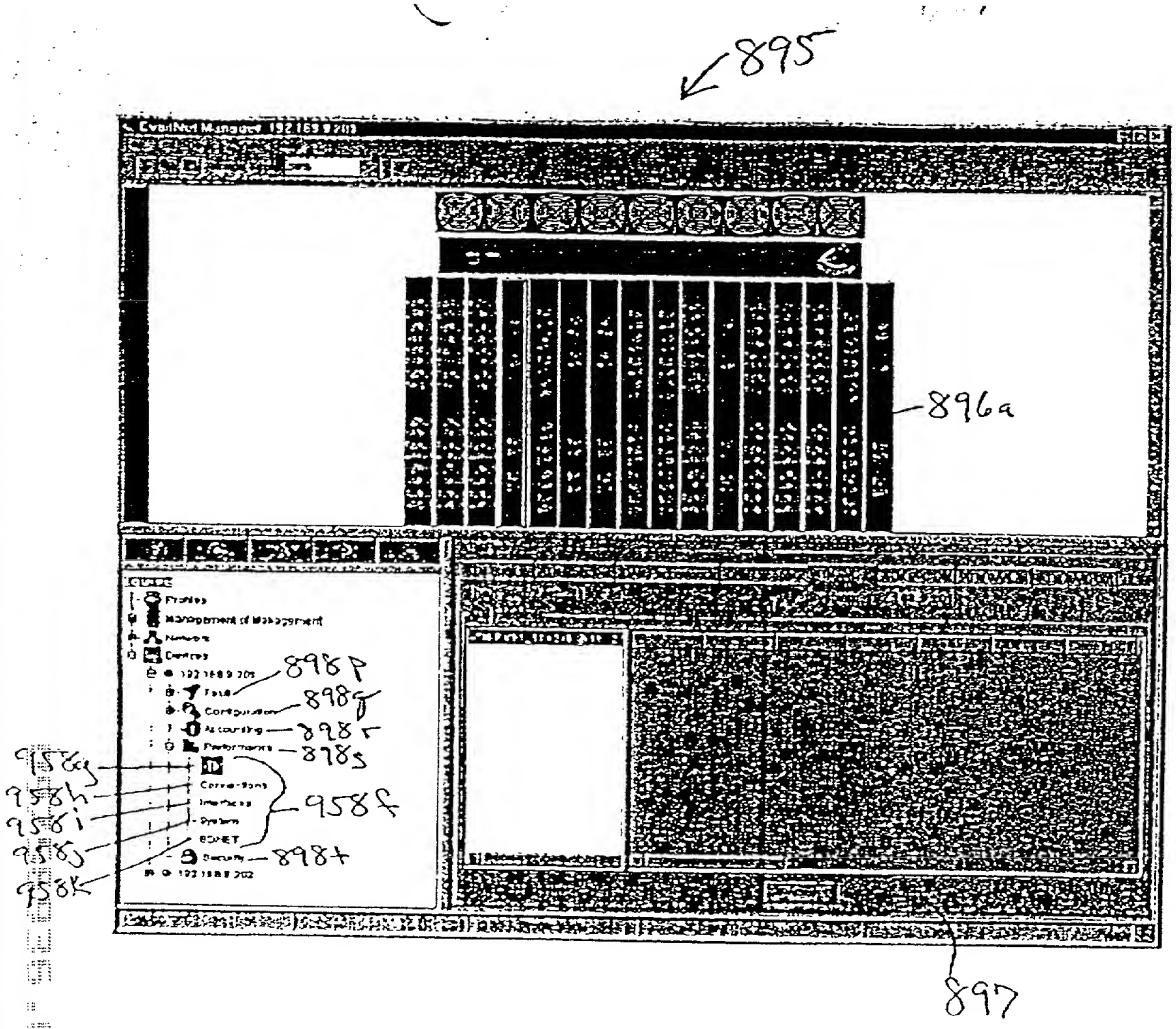
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Fig. 7s

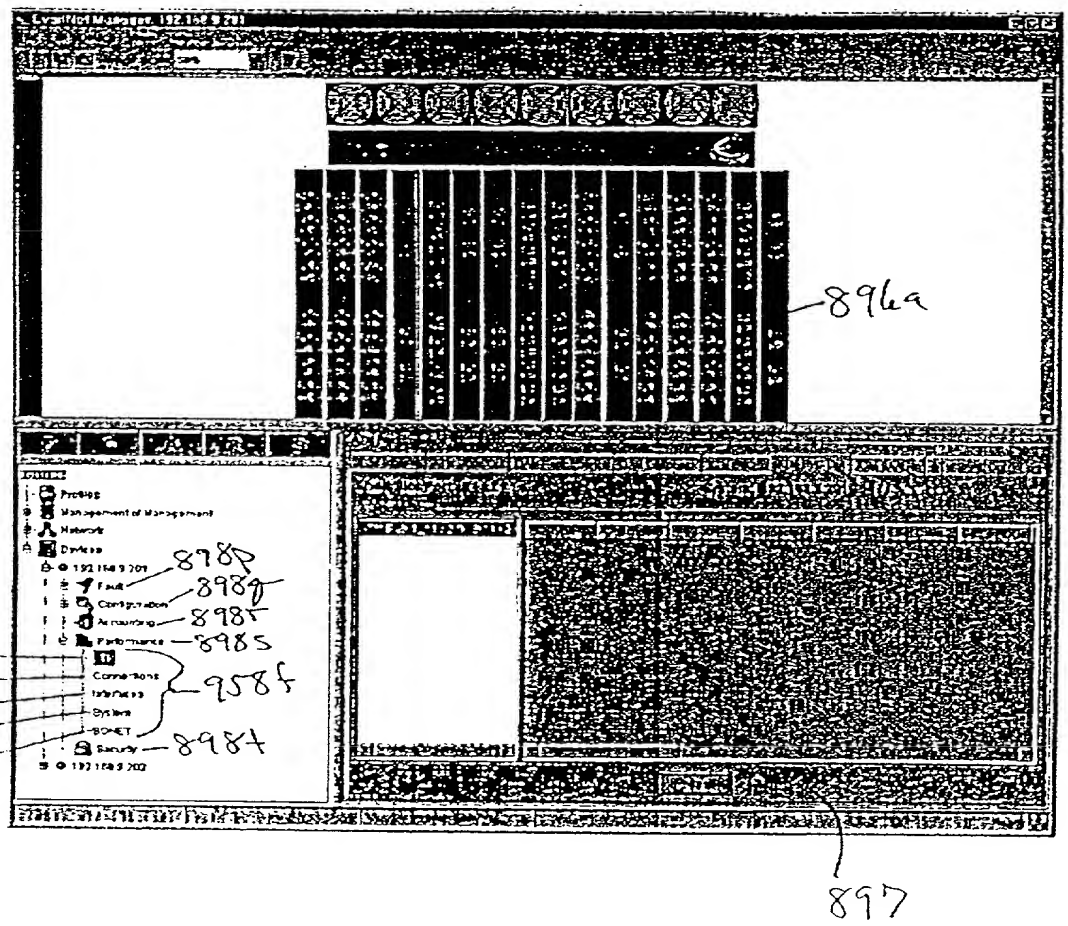
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Fig. 7t

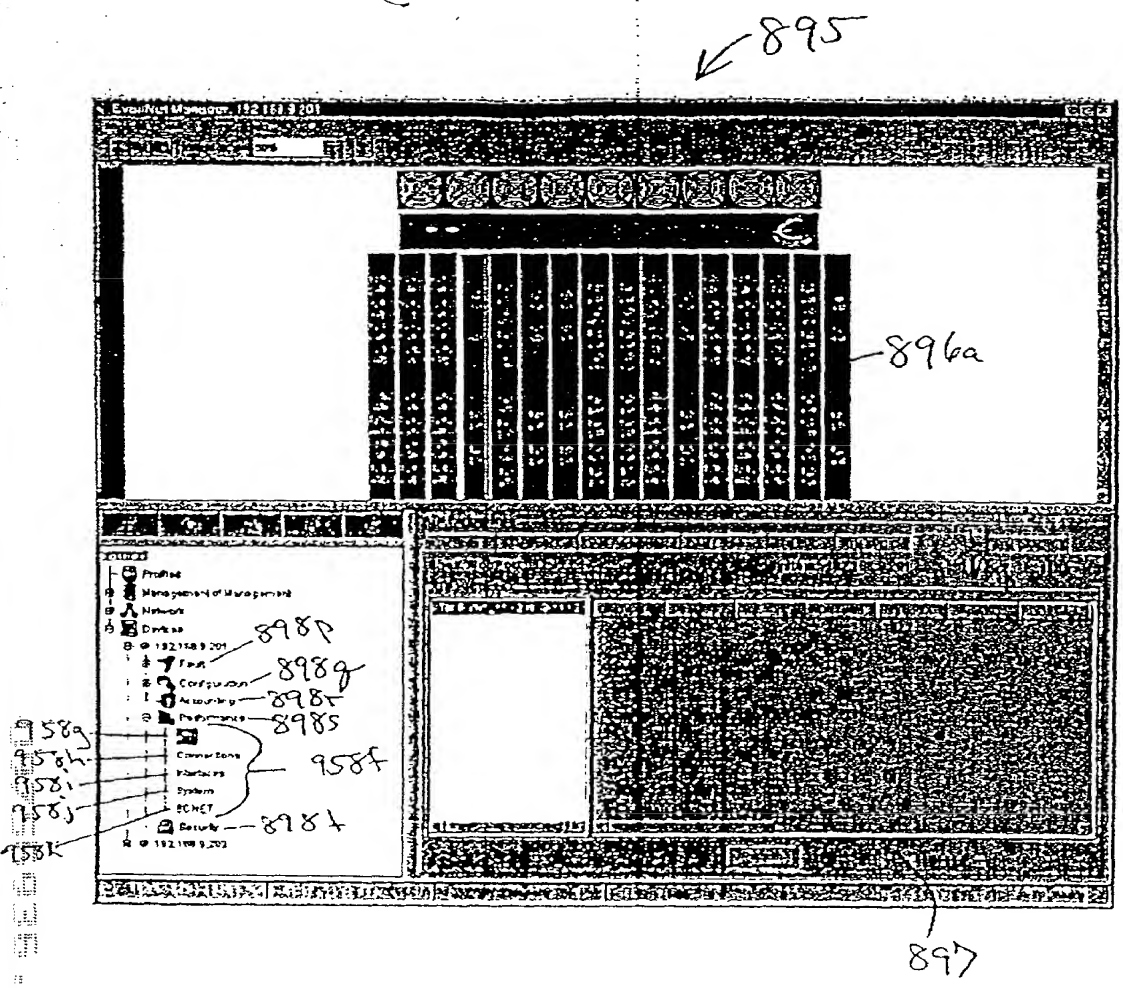
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Fig. 7u

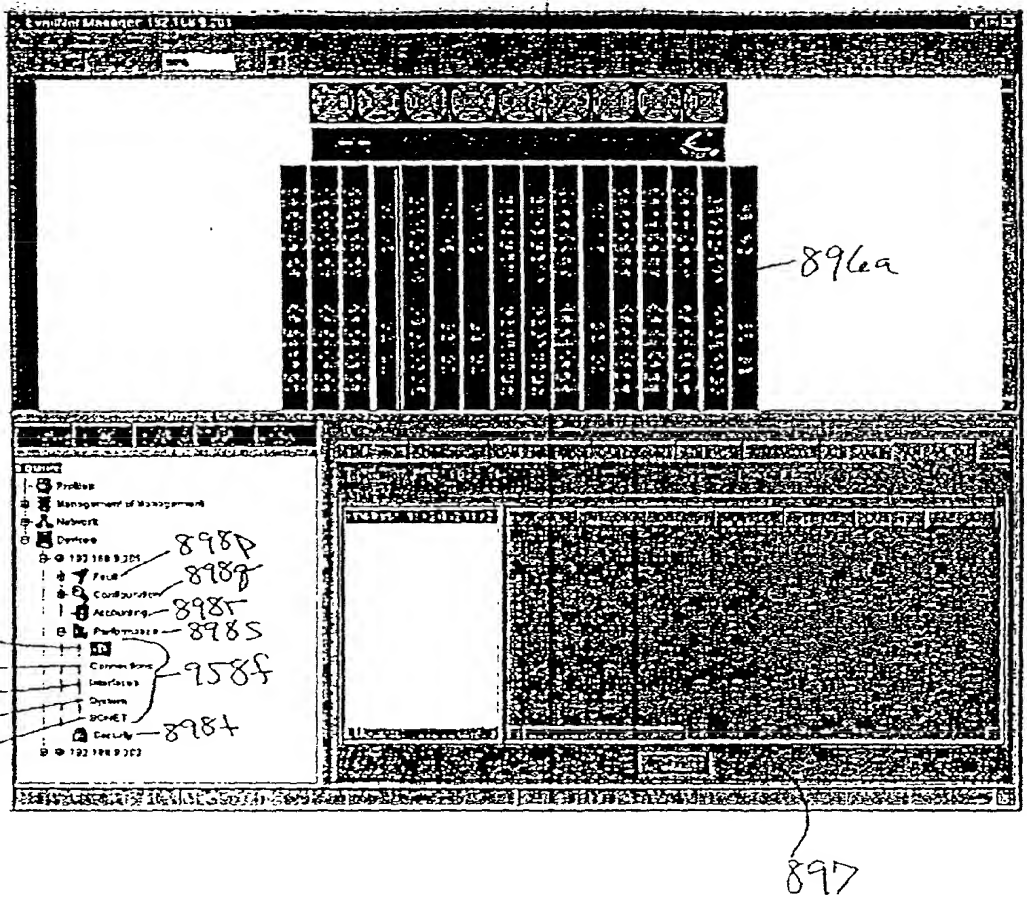
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Fig. 7v

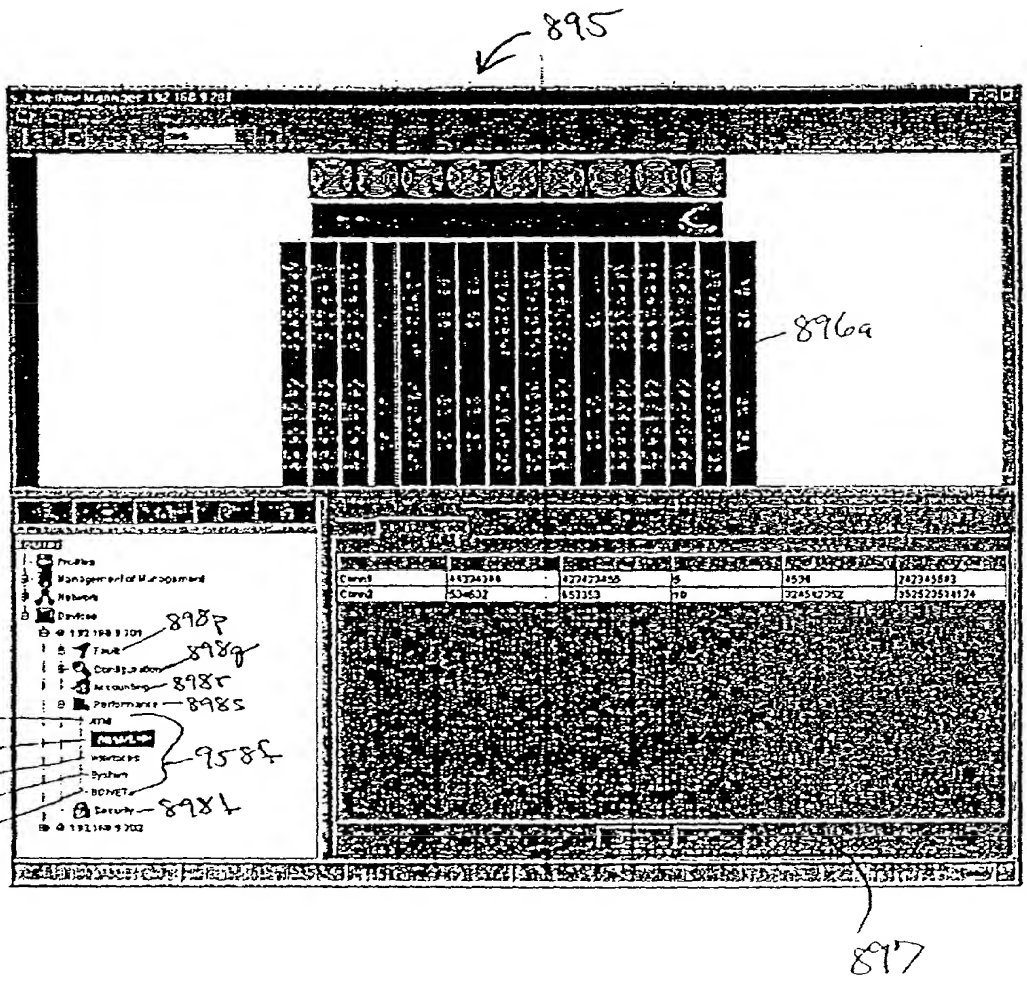
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Fig. 7w

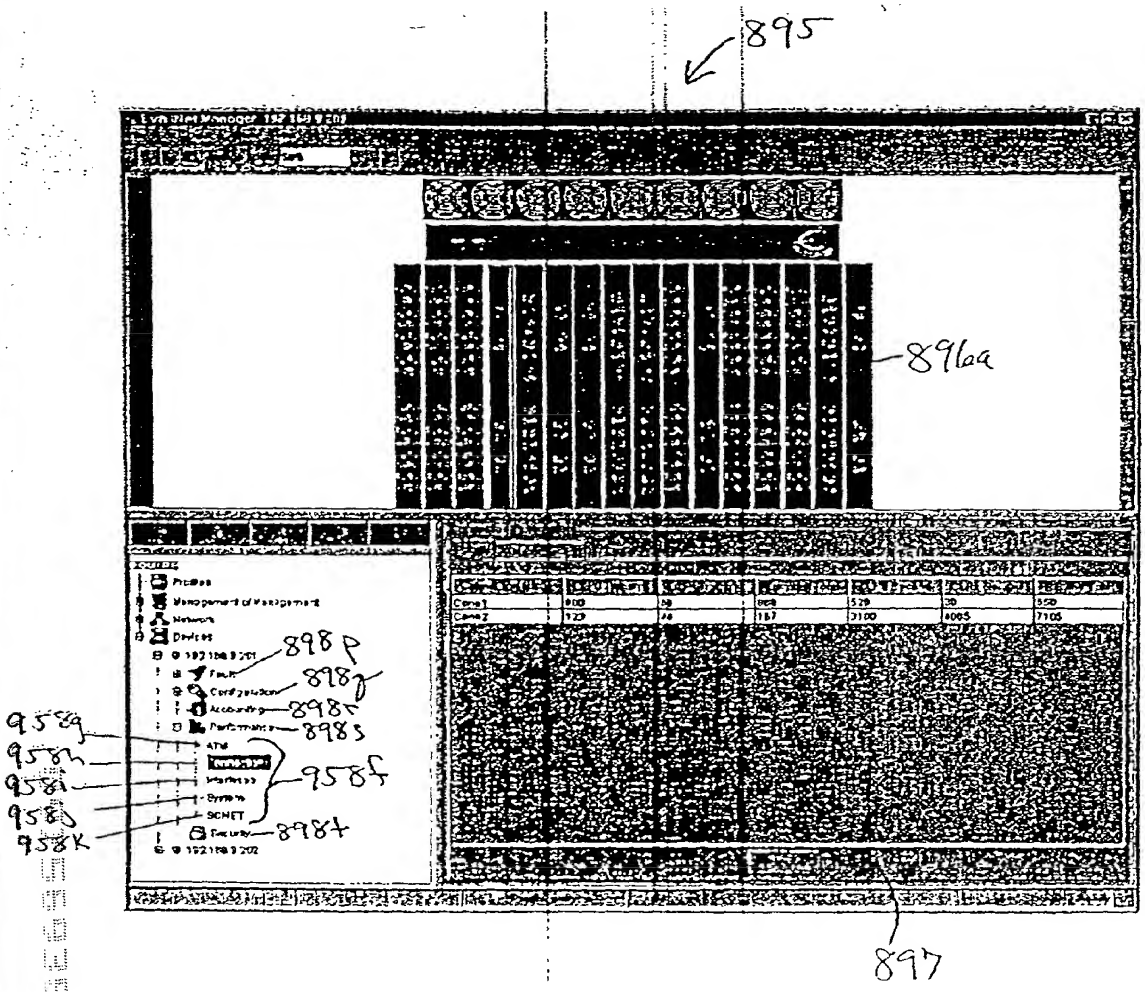
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Fig. 7x

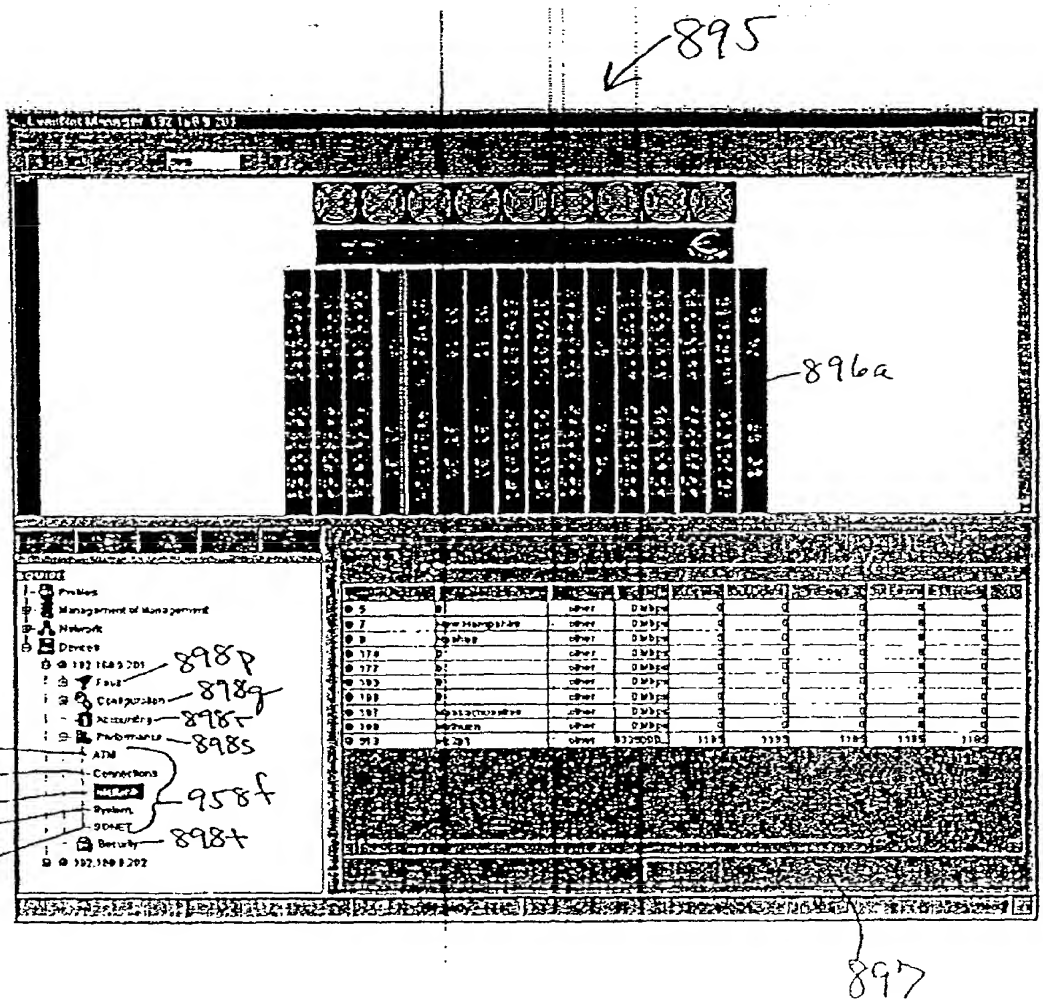
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Fig. 7Y

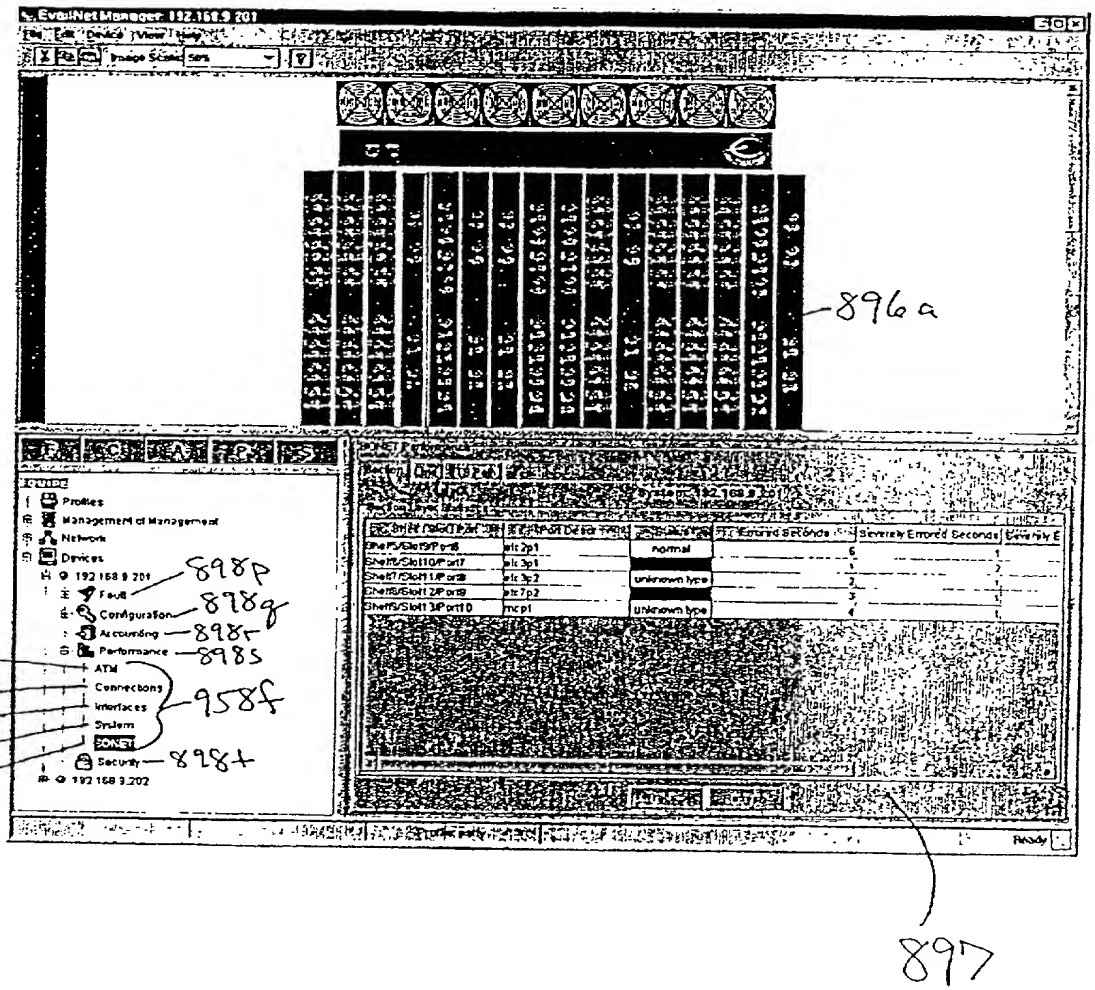
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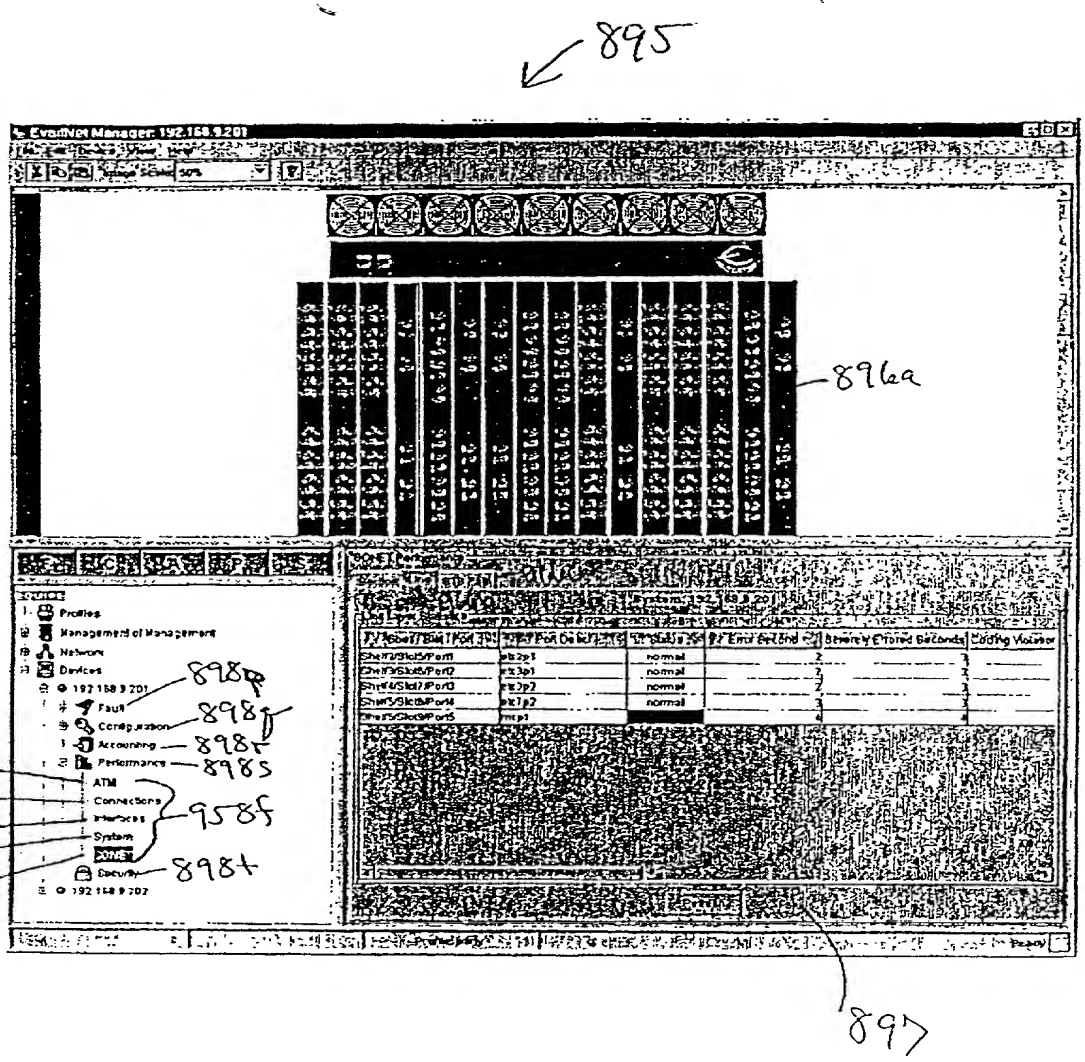
Fig. 8a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Profiles
Management of Management
Network
Devices
Fault
Configuration
Accounting
Performance
ATM
Connections
Interfaces
System
DWDM
Security

Fig. 86

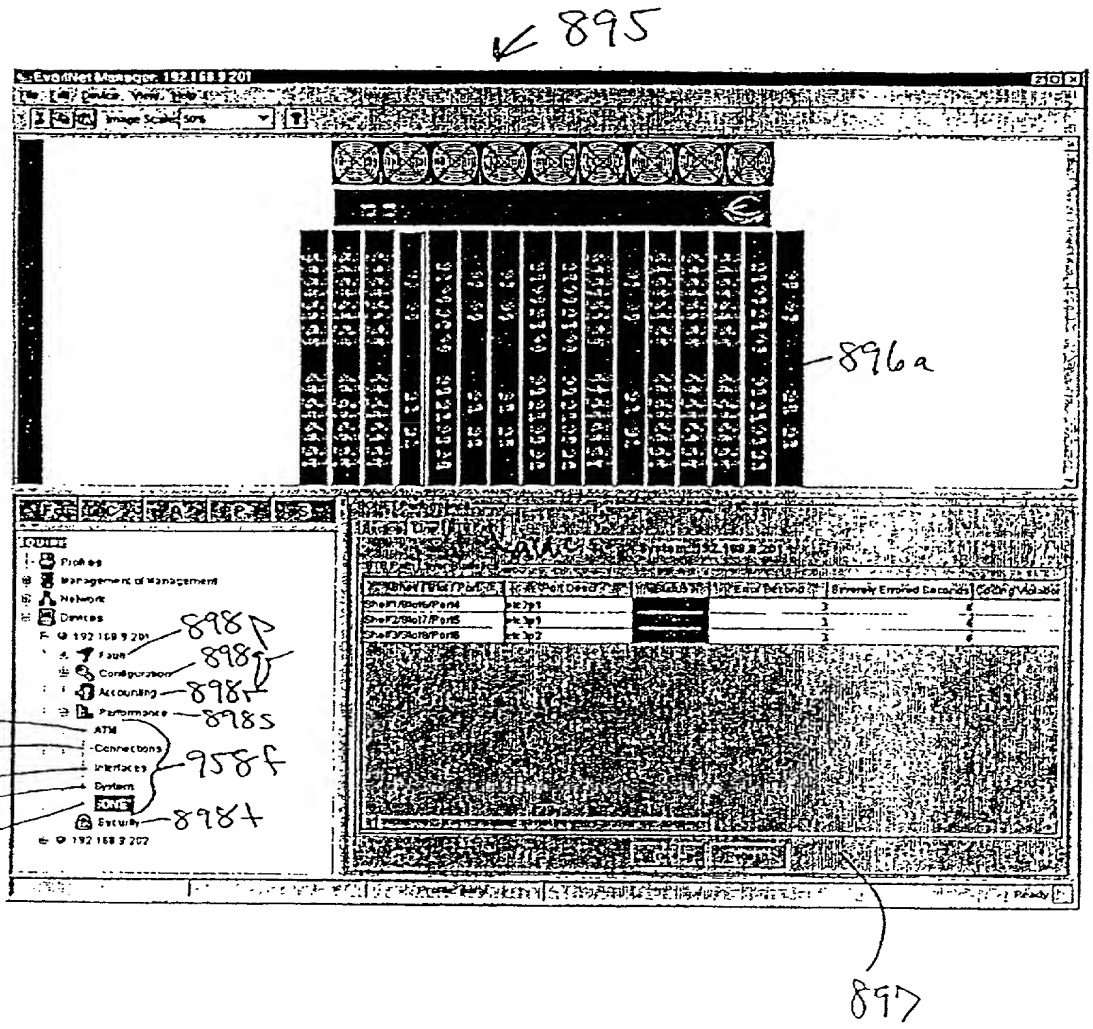

Fig. 8c

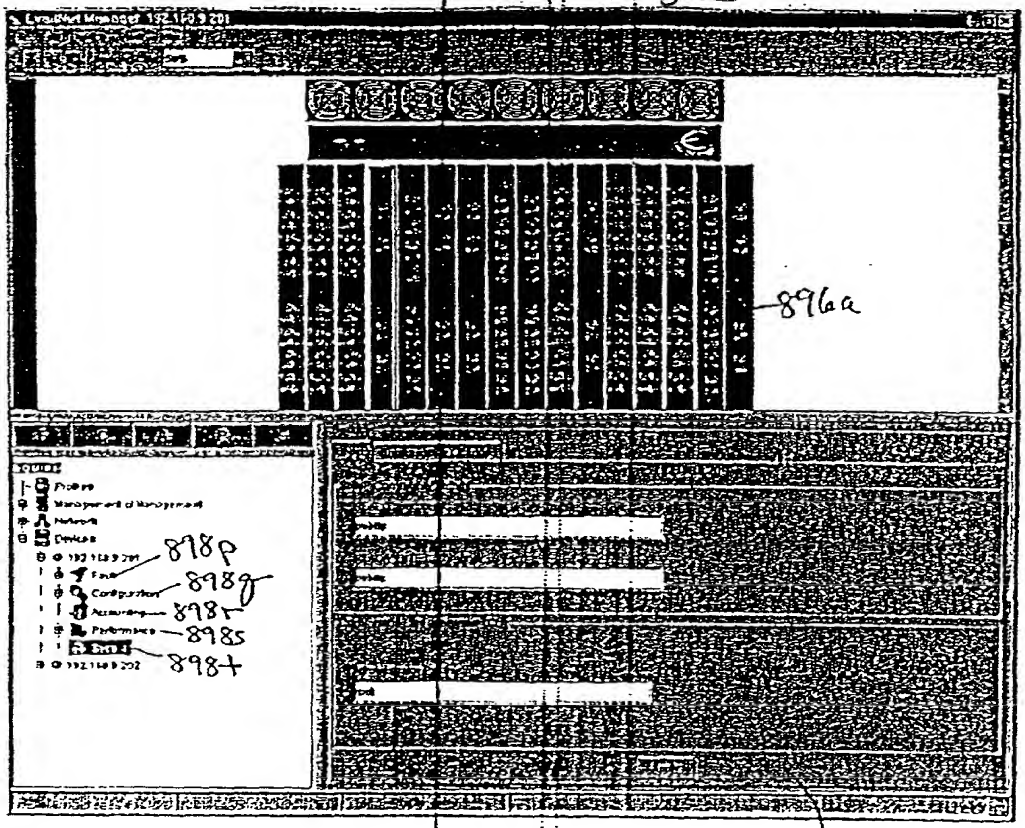

Fig 8d

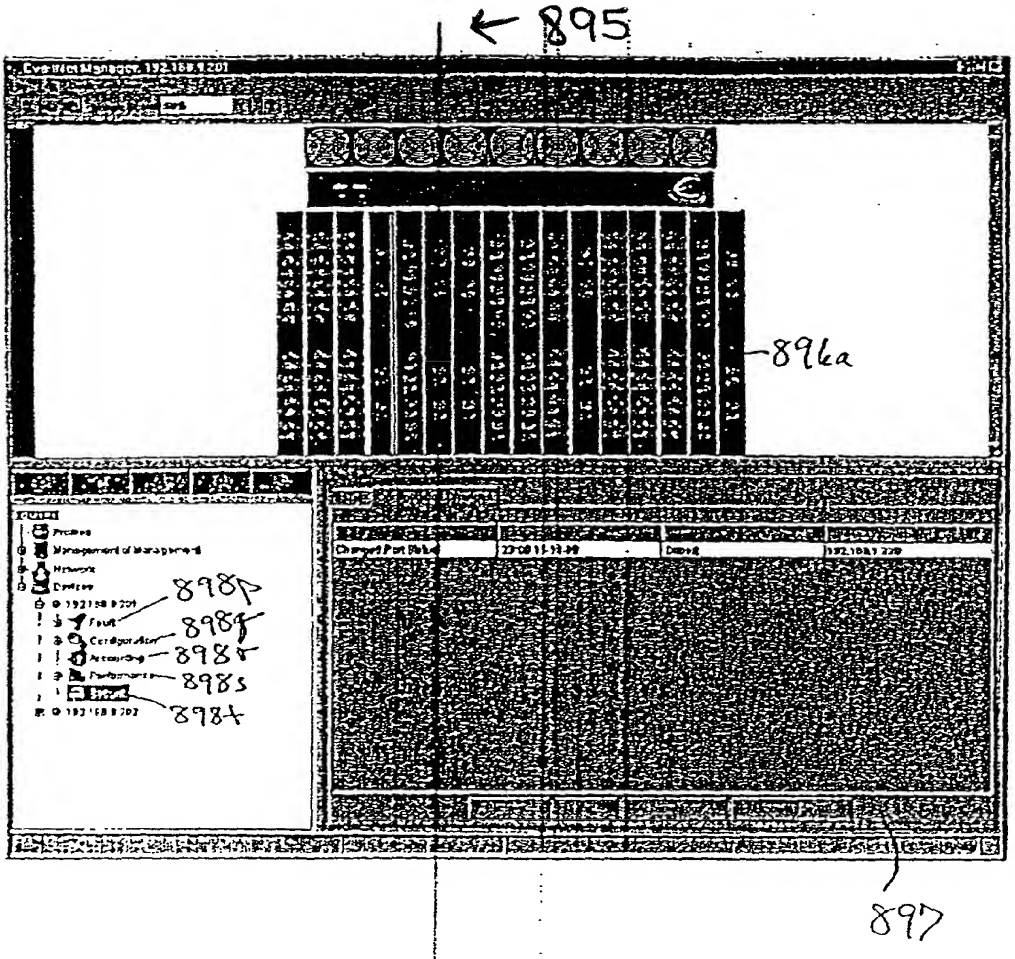

Fig. 8e

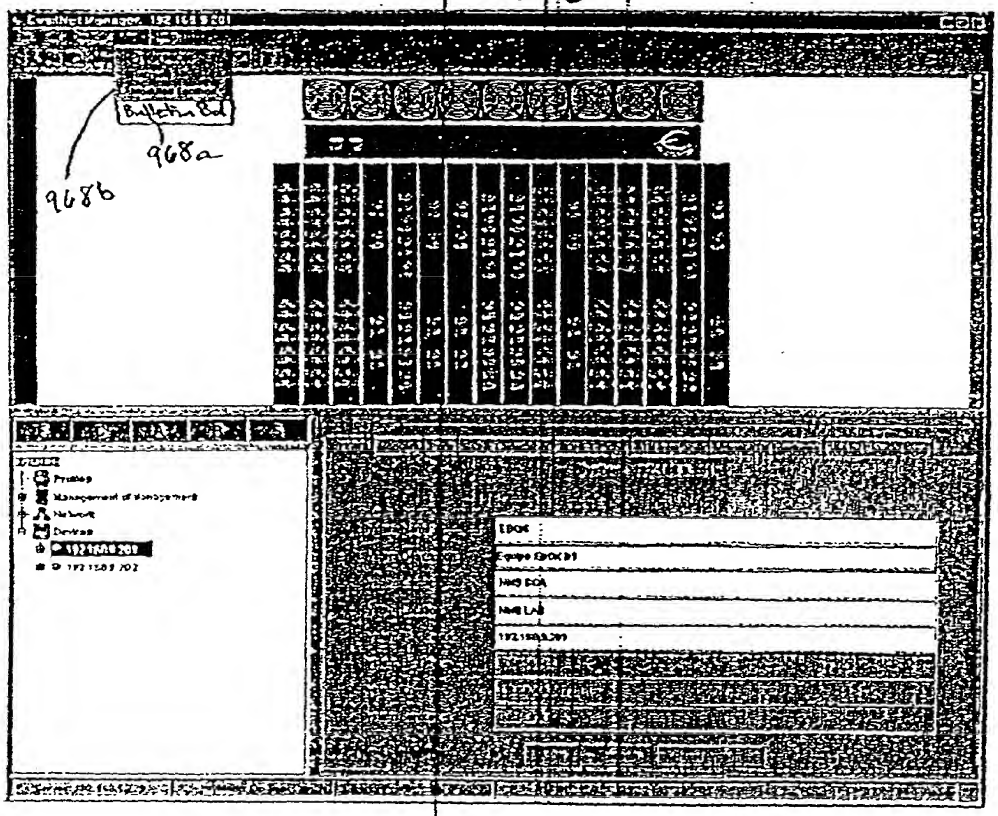

Fig. 9a

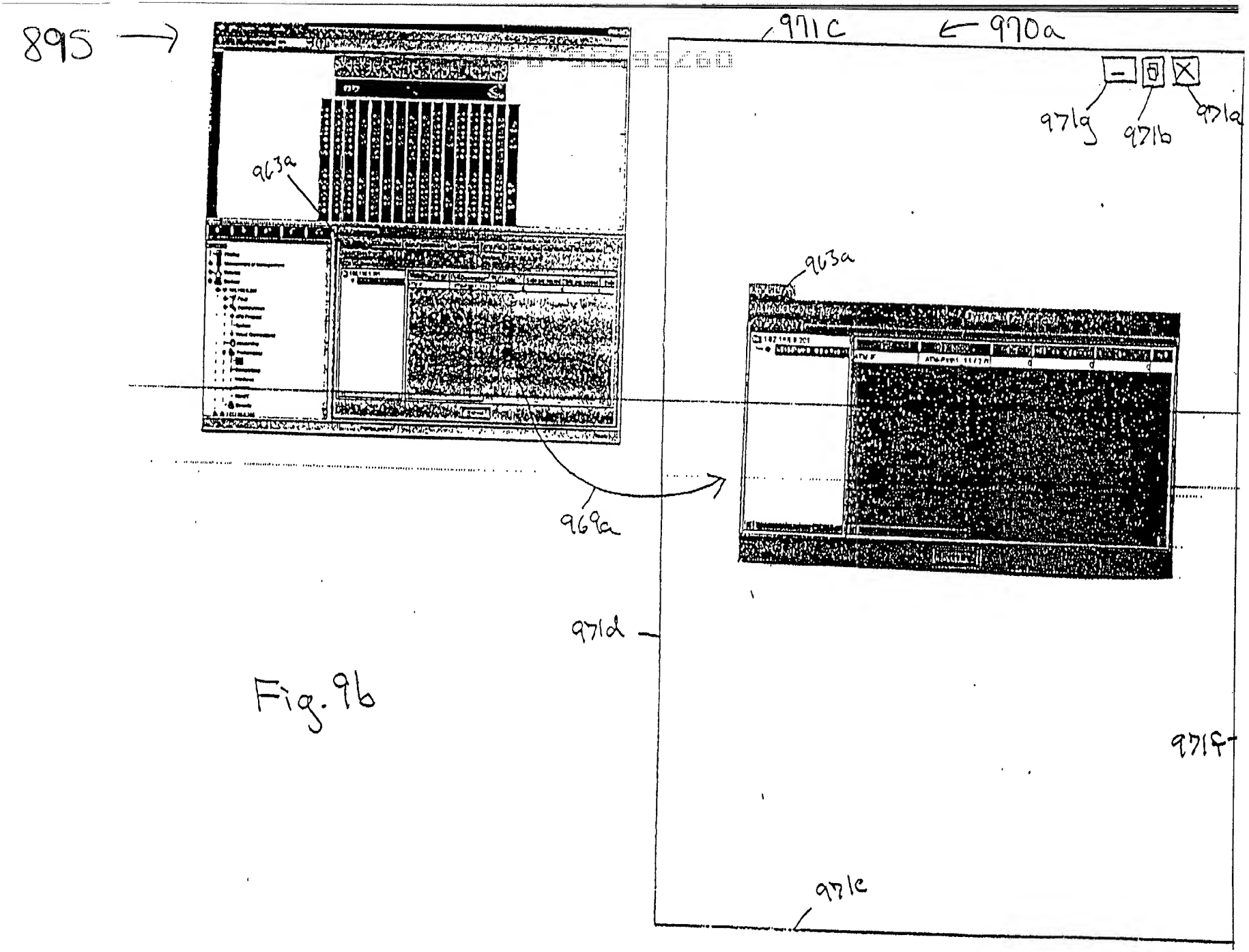

Fig. 9b

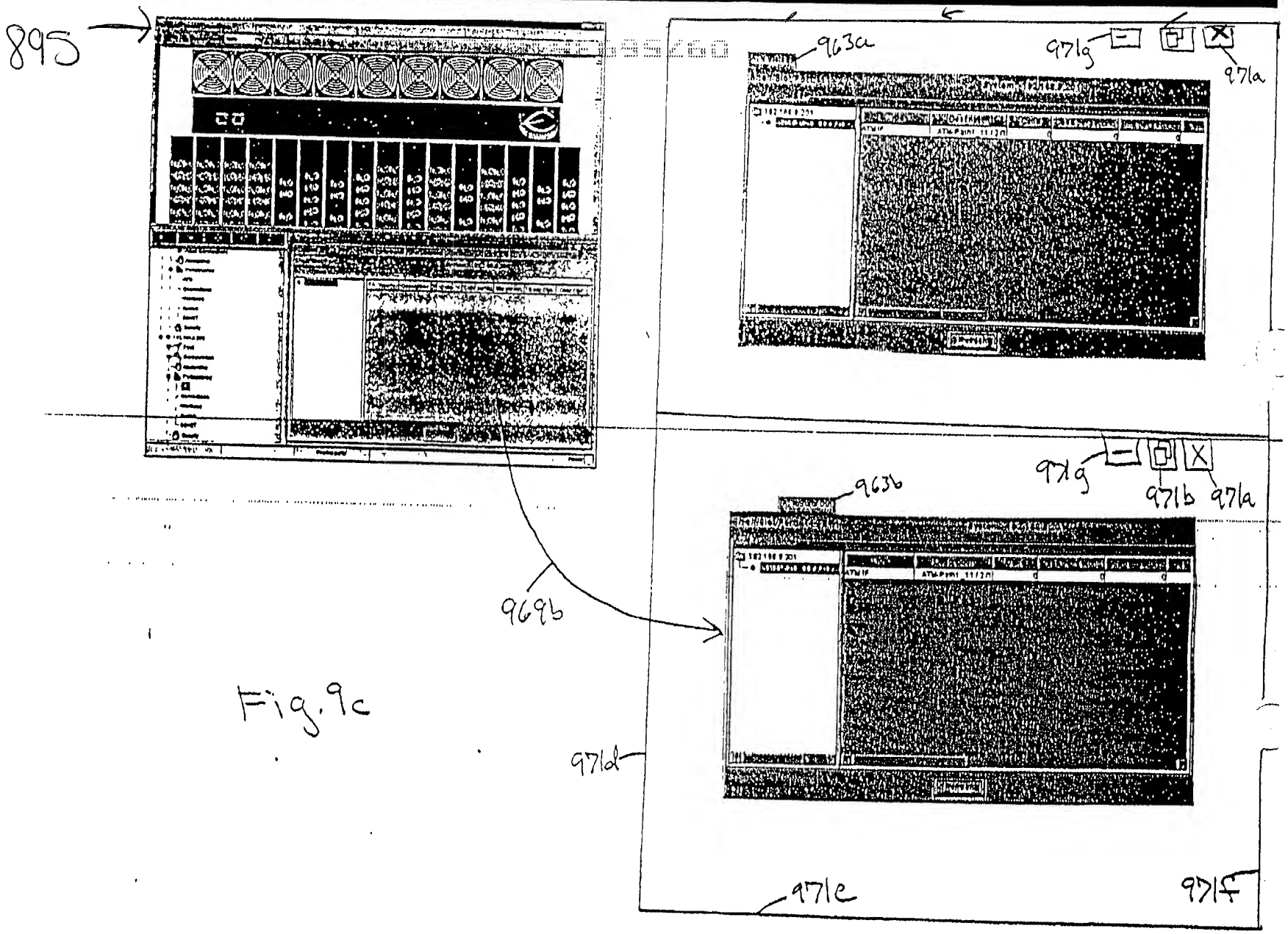

Fig. 9c

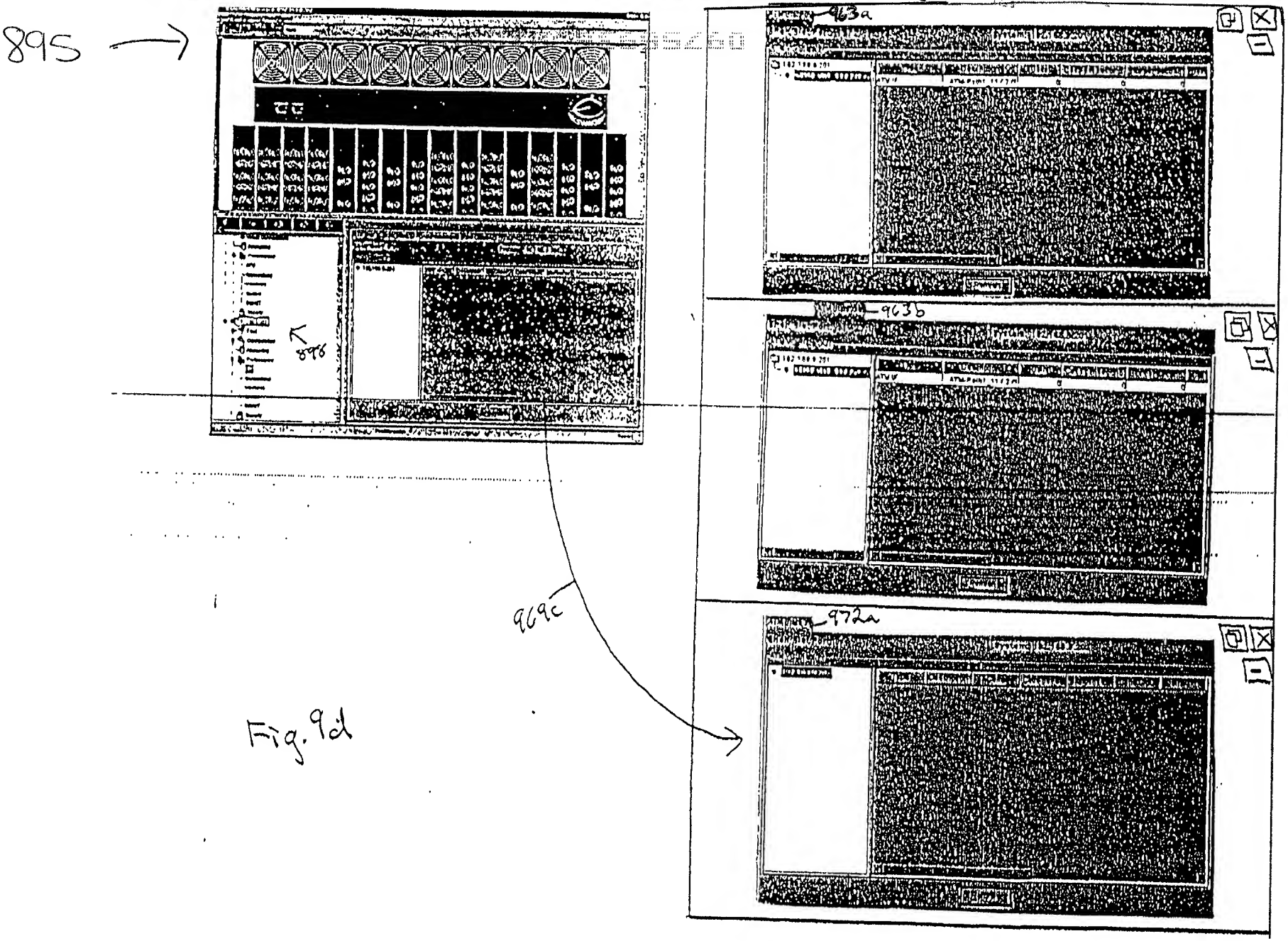

Fig. 9d

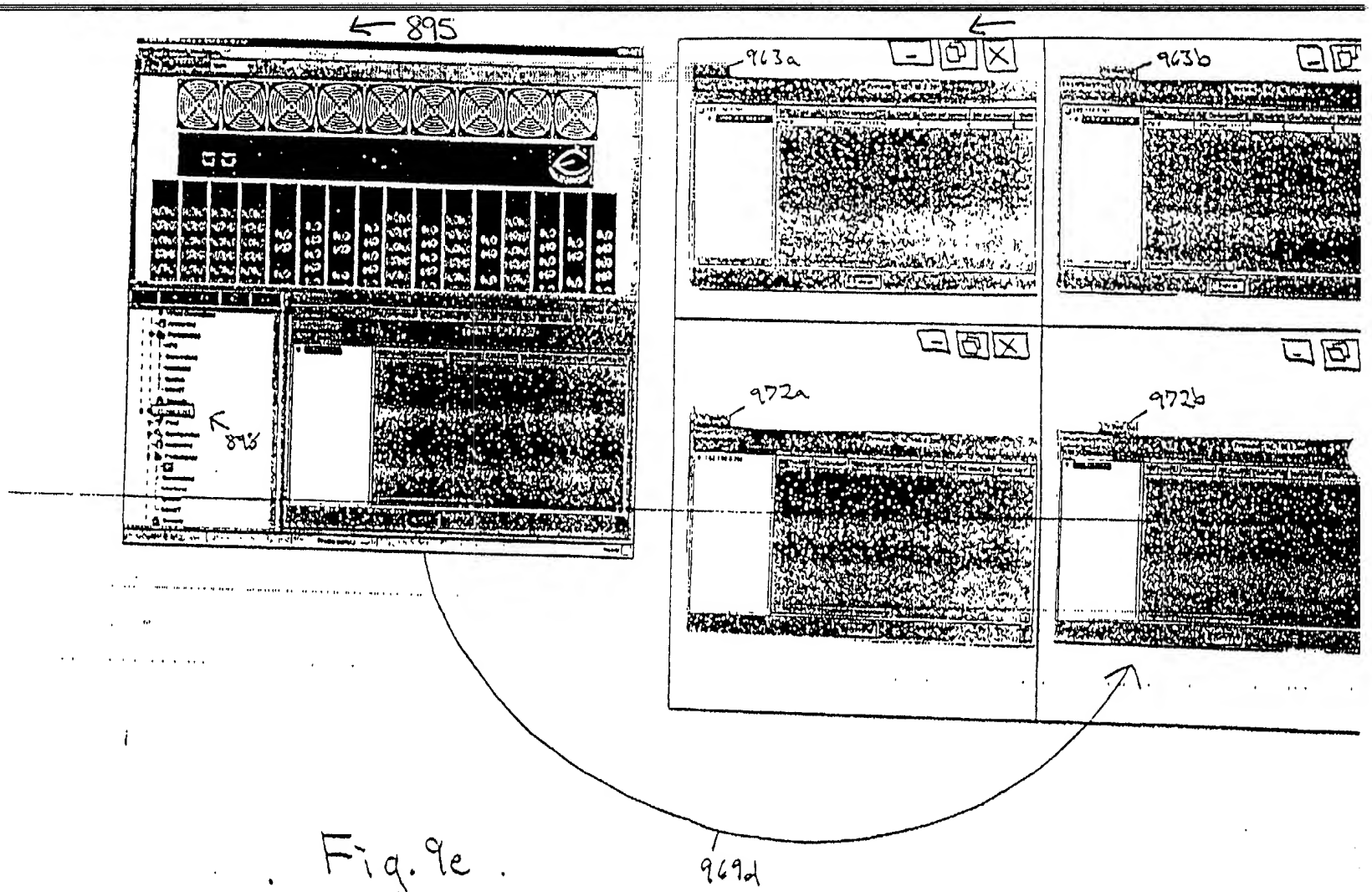

Fig. 9e

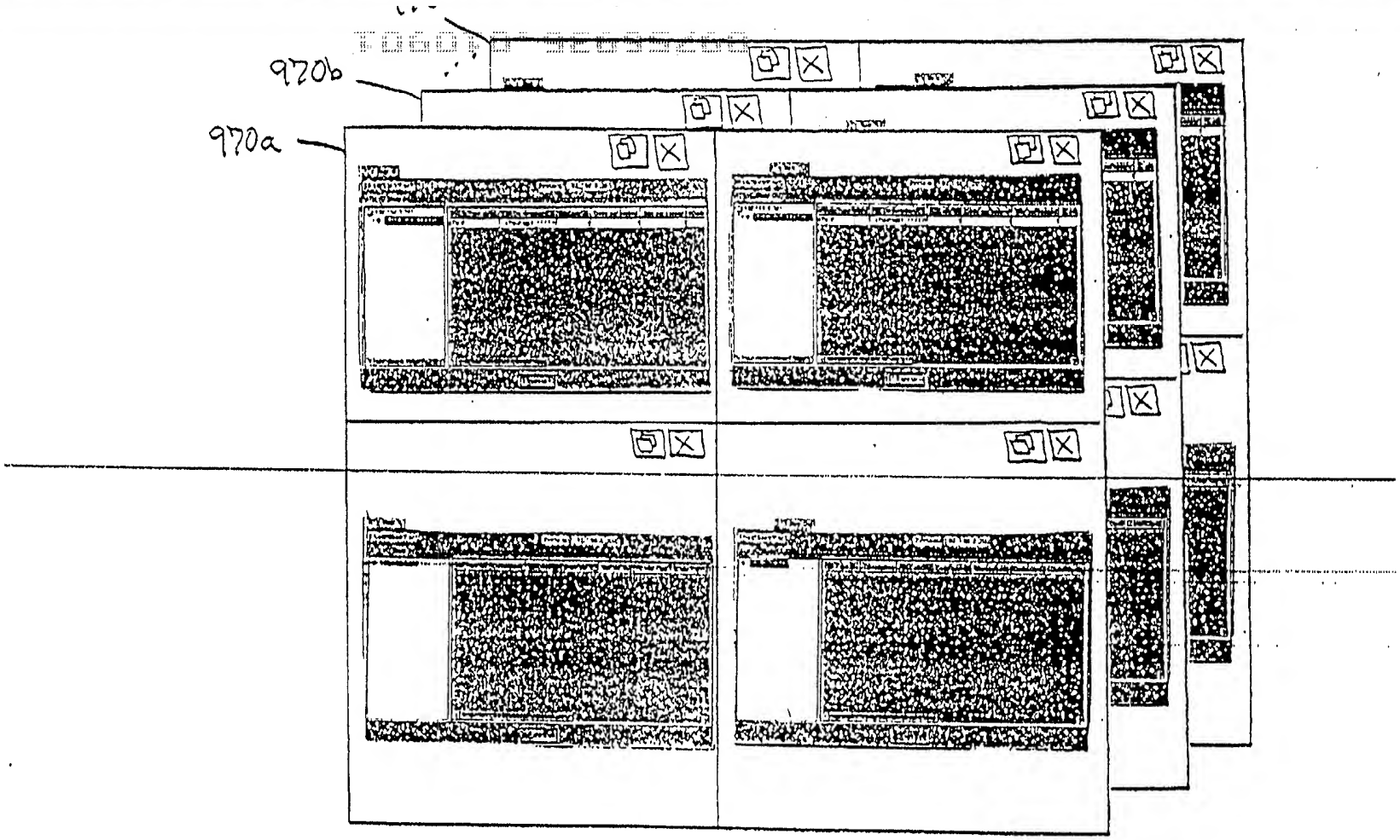

Fig. 9f

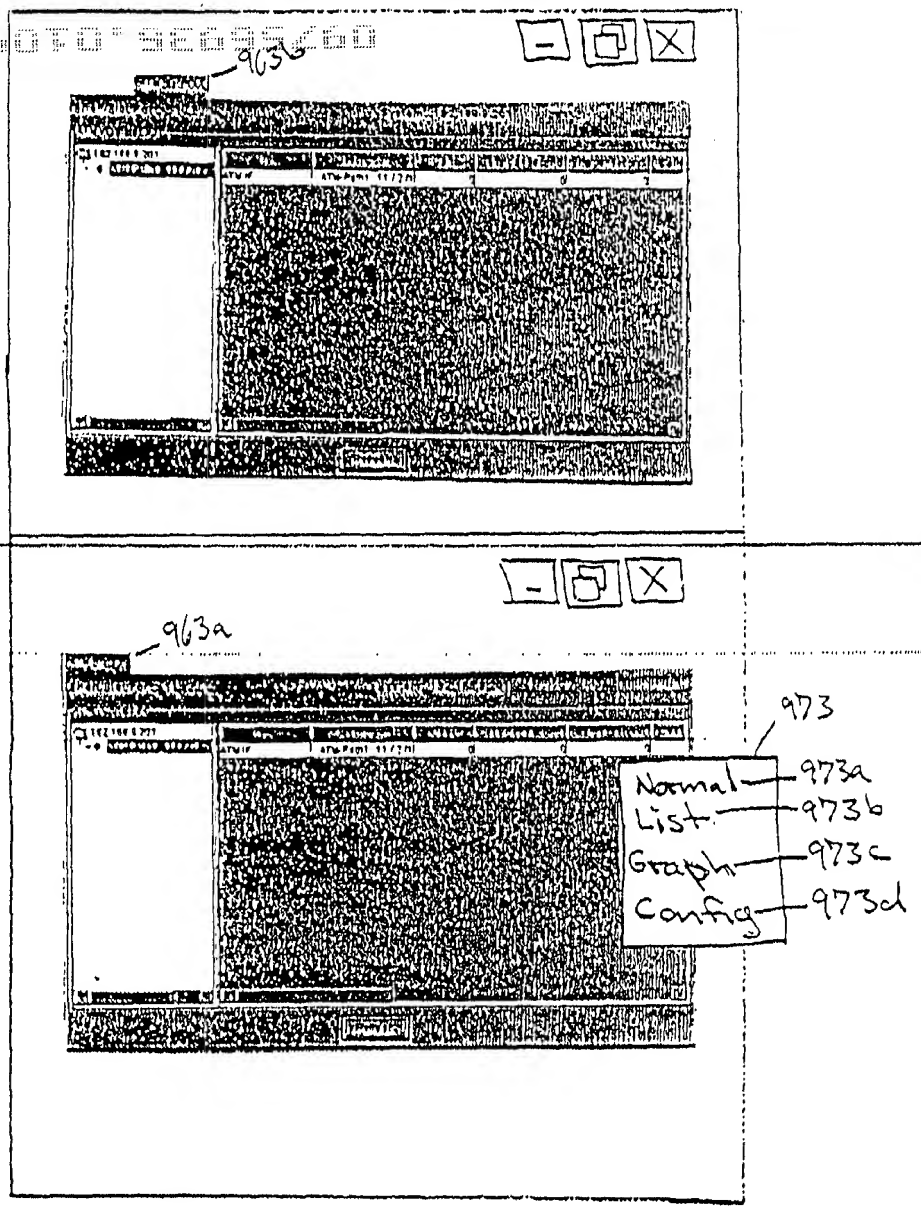

Fig. 9g

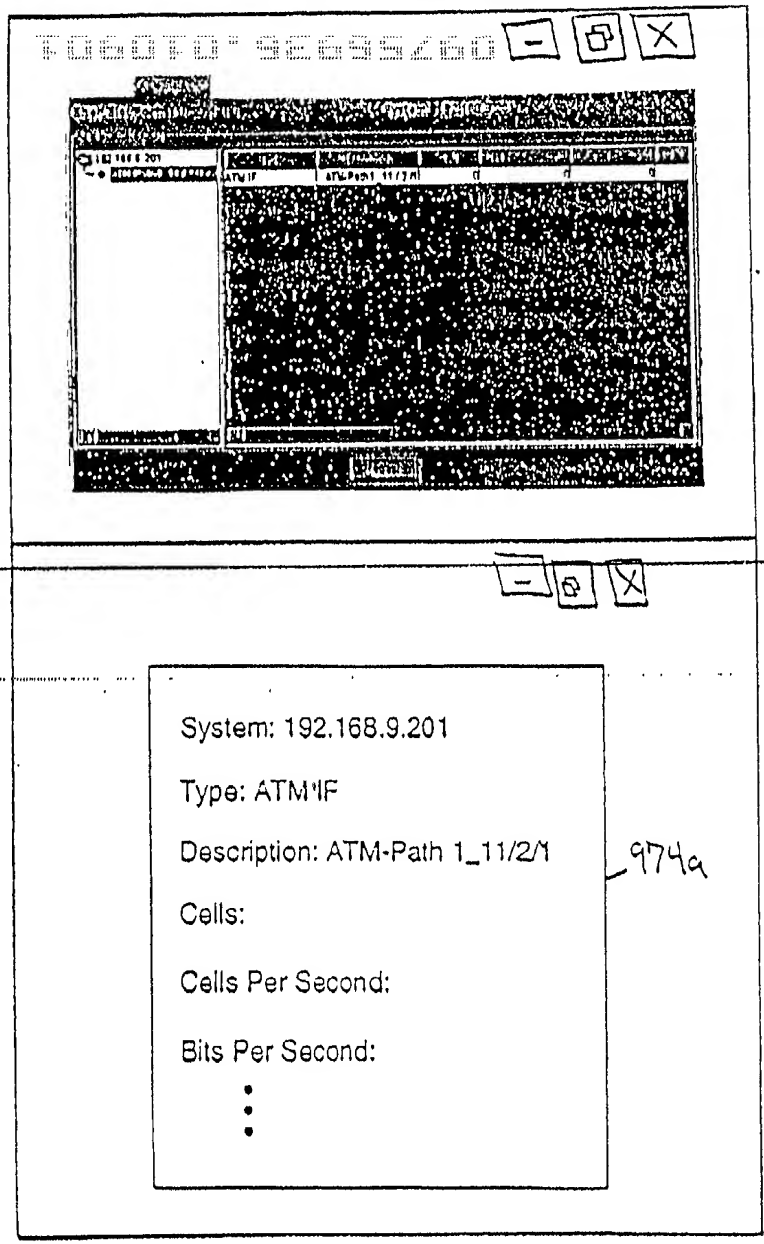
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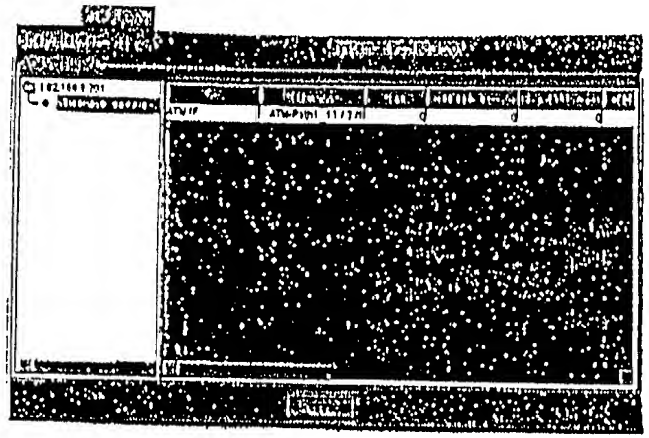
Fig. 9h



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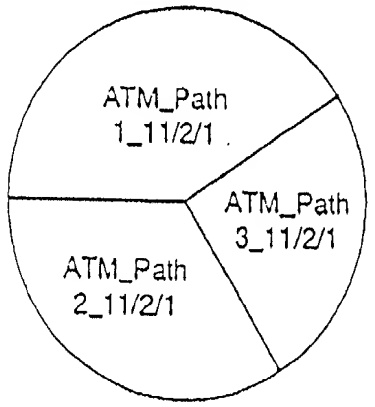

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Fig. 9i

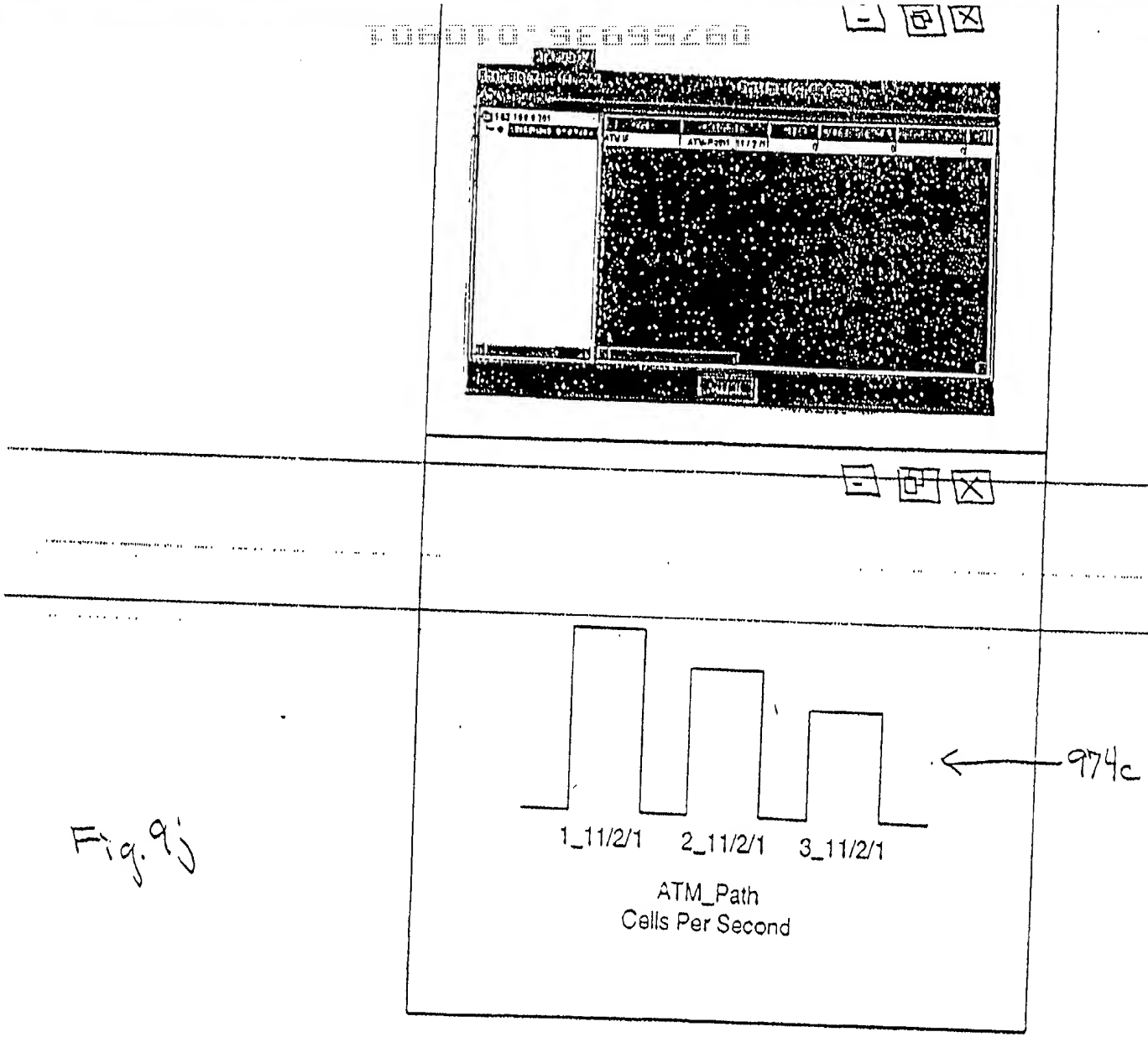

Fig. 9j

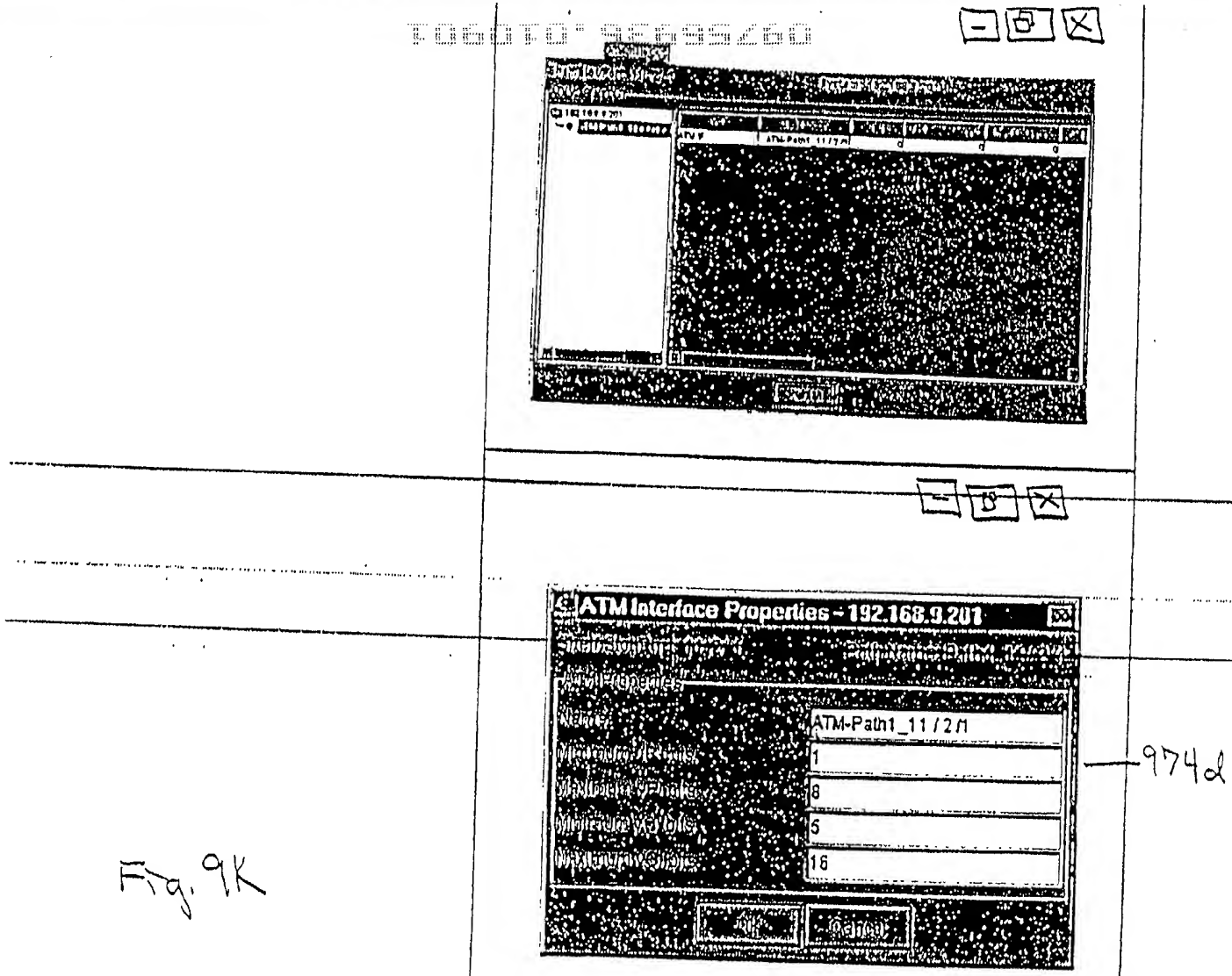
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Fig. 9K

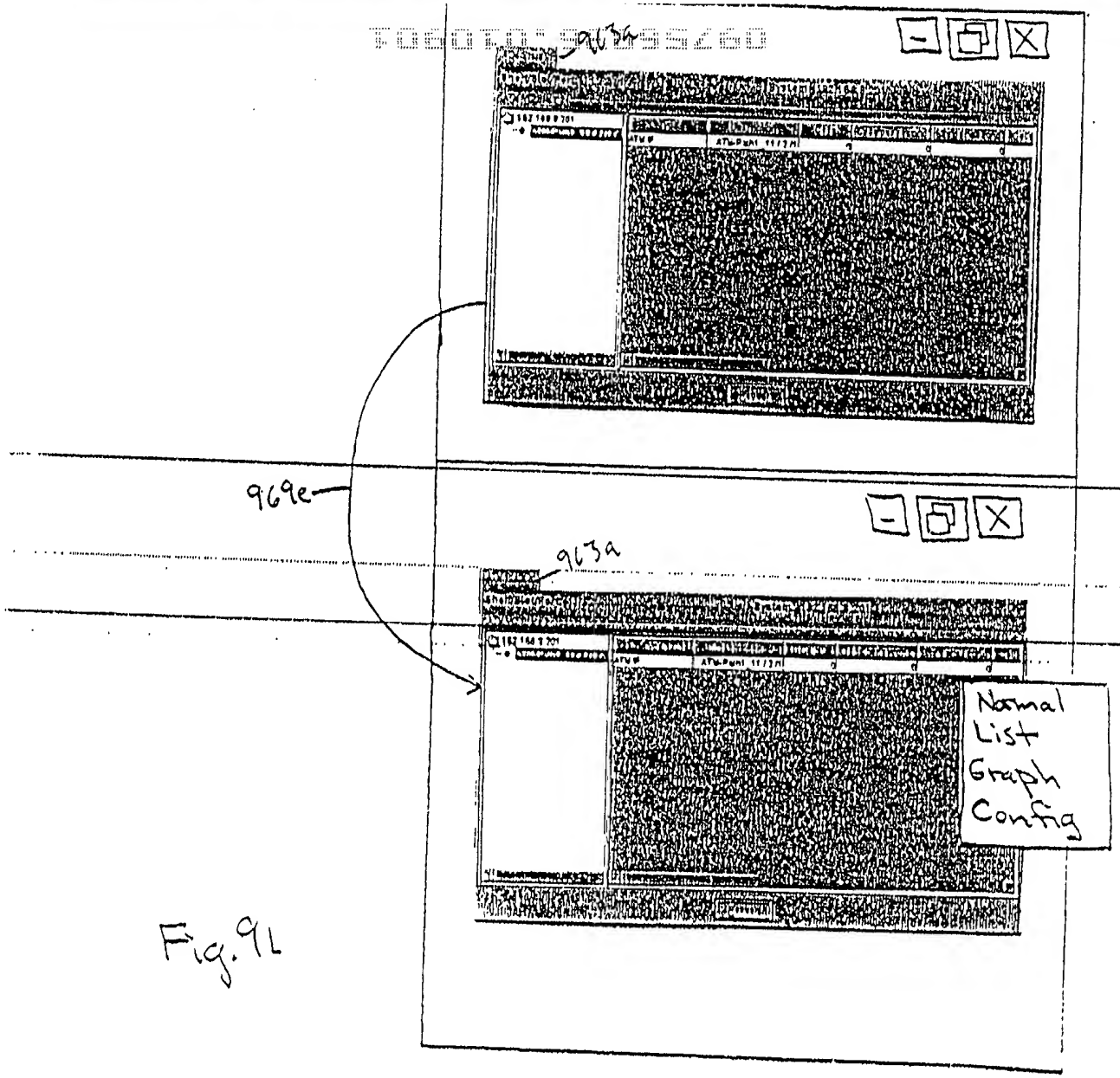


Fig. 9L

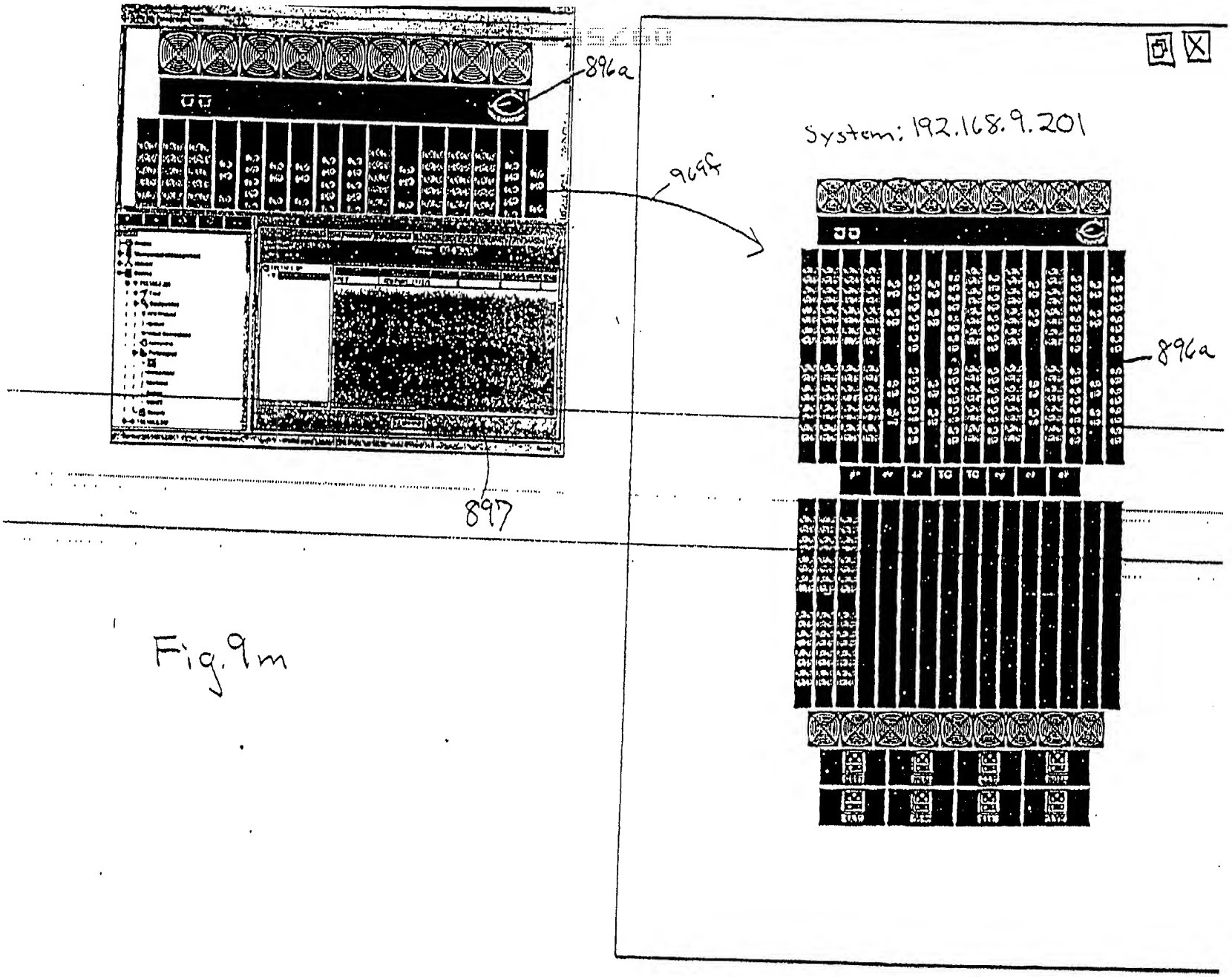


Fig. 9m

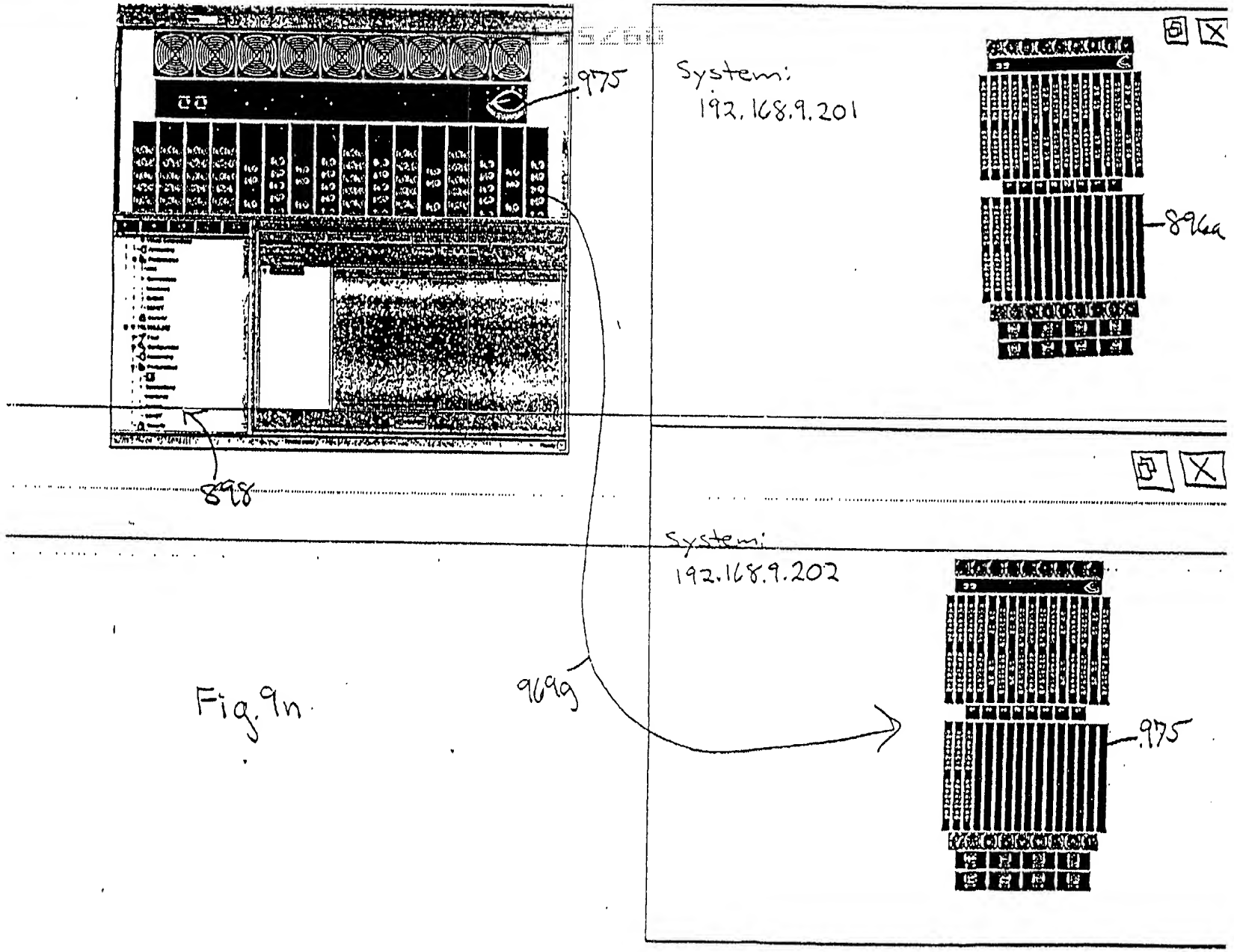


Fig. 9n

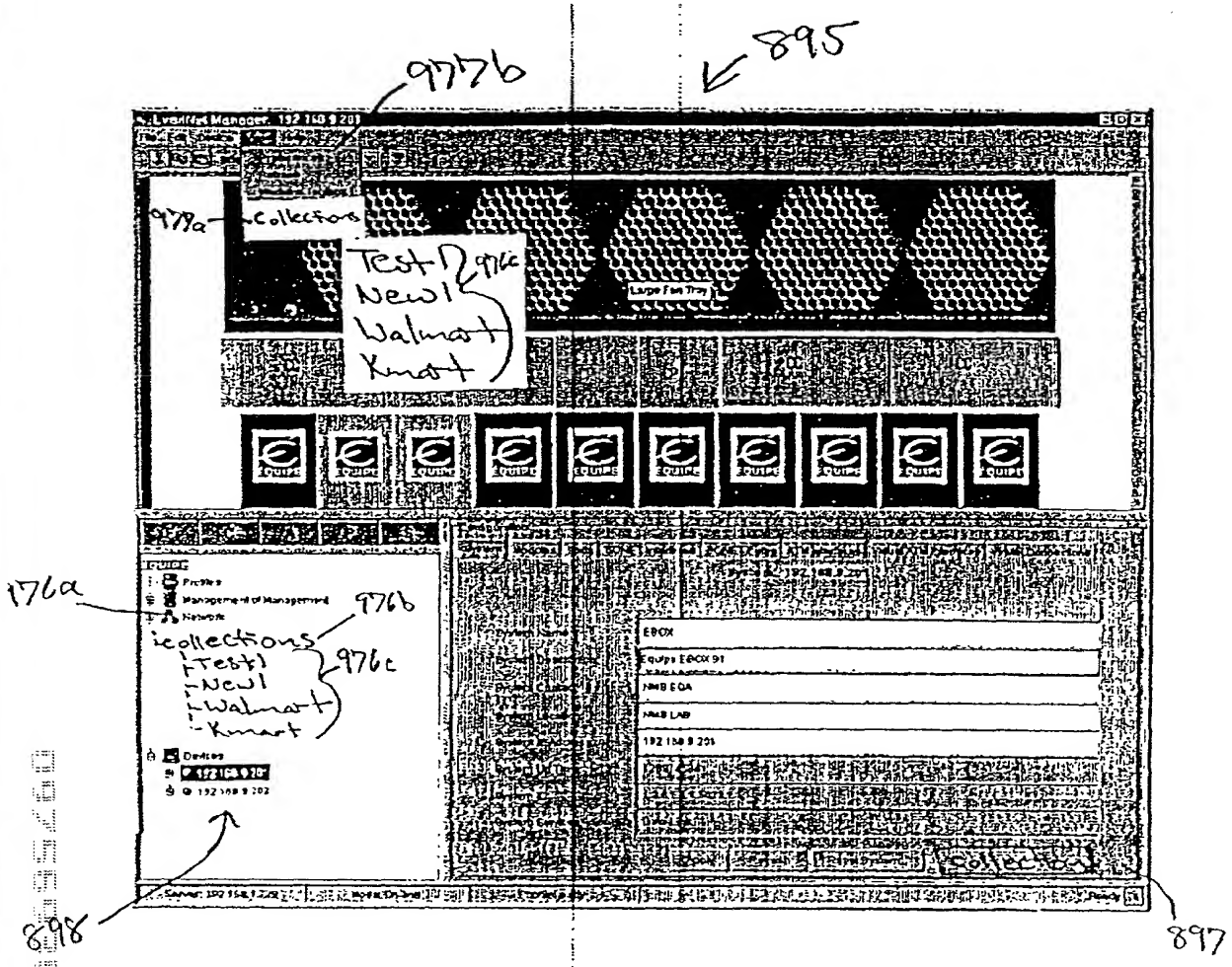

895
976b
976a
Collections
Test1
New1
Walmart
Kmart
976c
176a
976b
976c
898
897

Fig. 10a

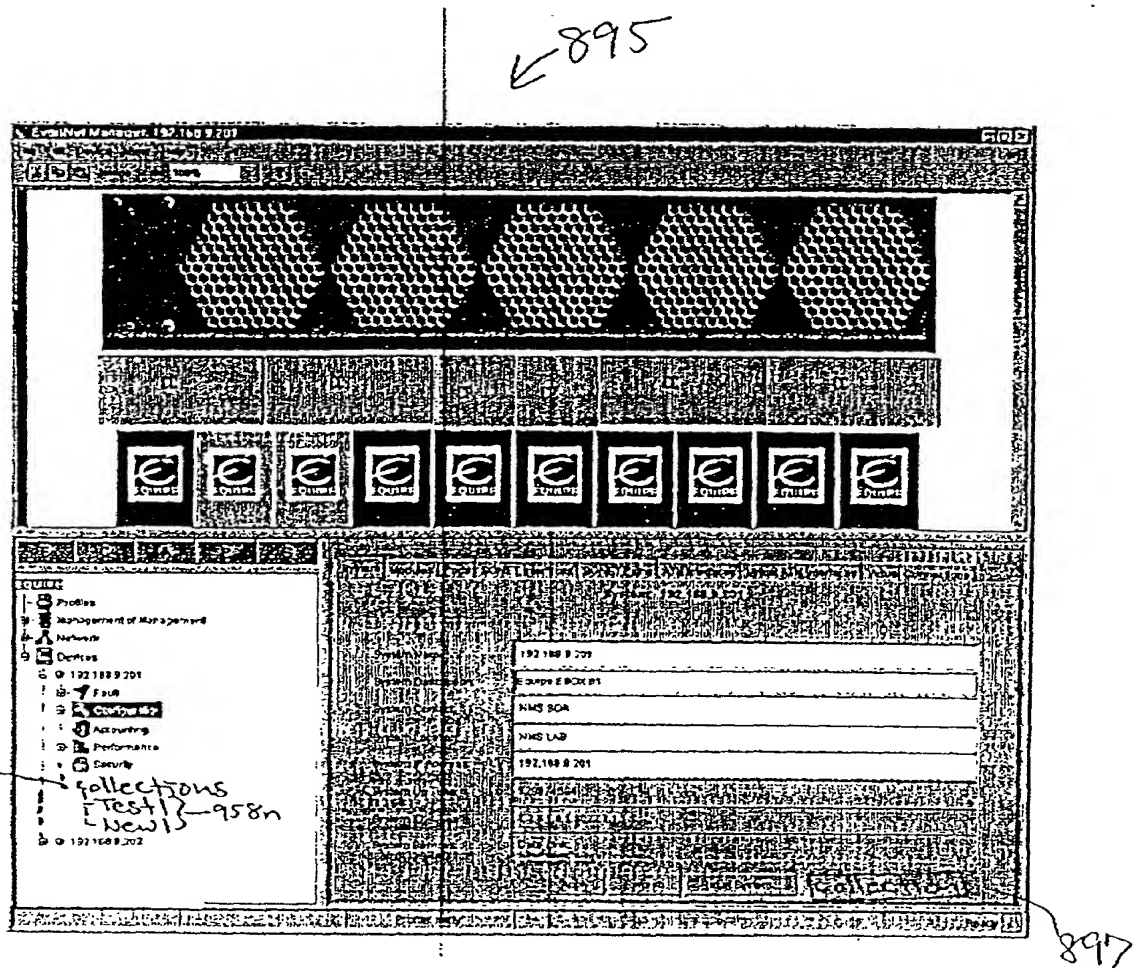


Fig. 10b

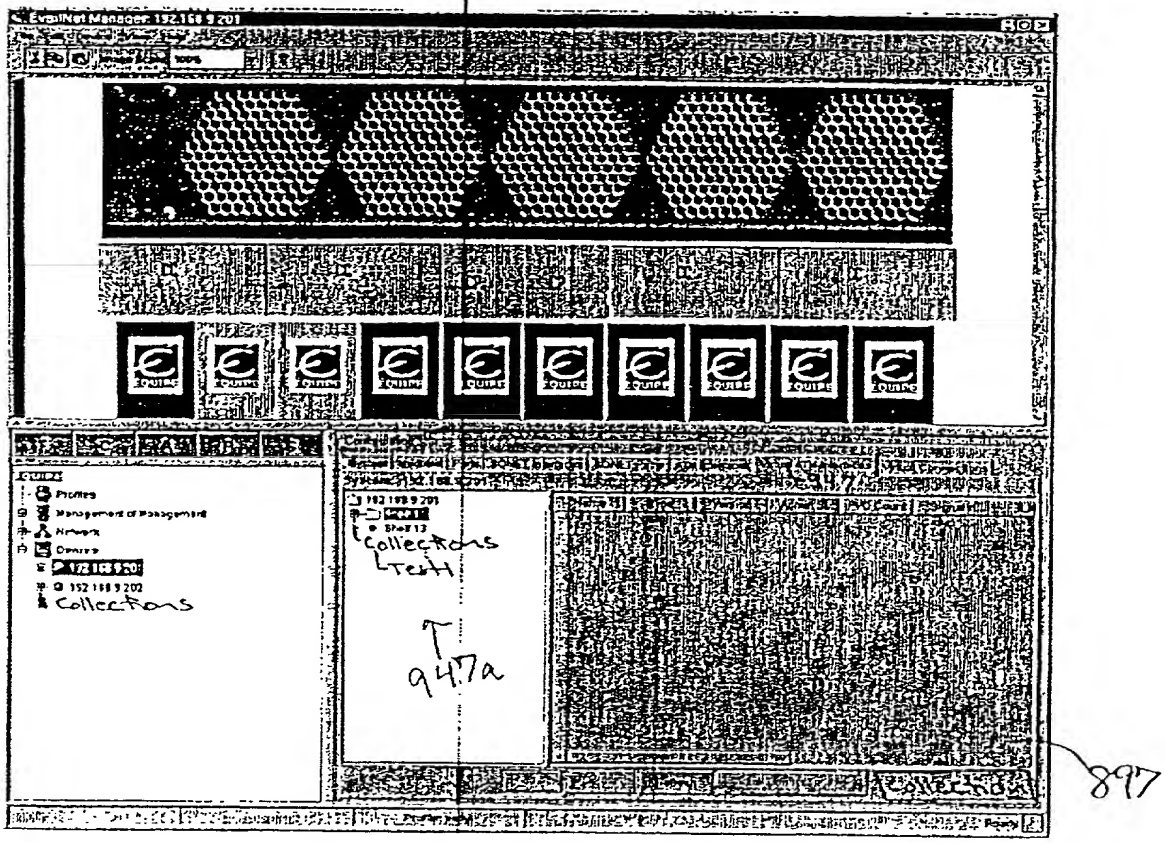


Fig. 10c

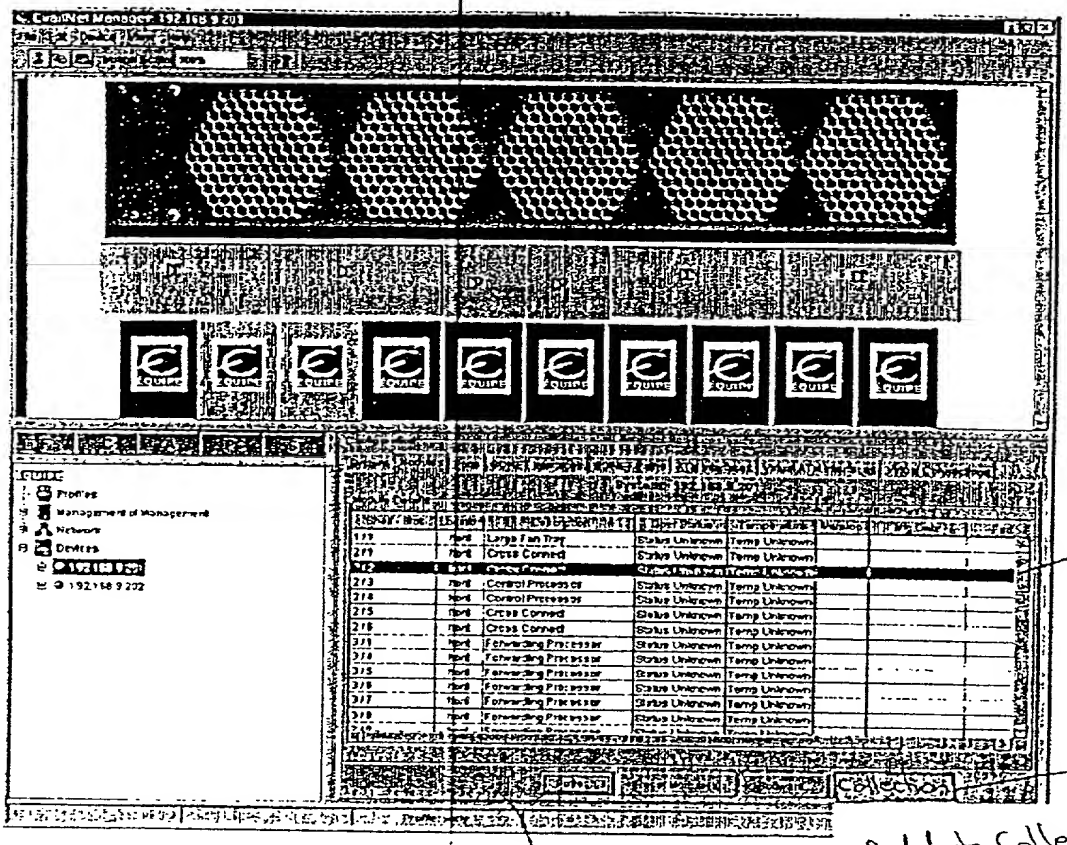


Fig. 10d

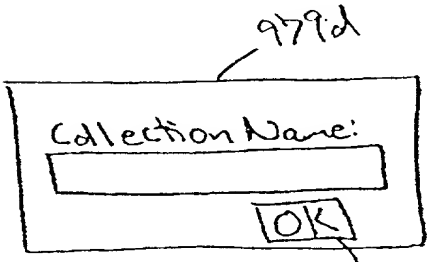


Fig. 10e

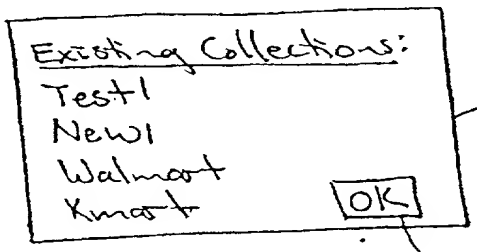


Fig. 10f

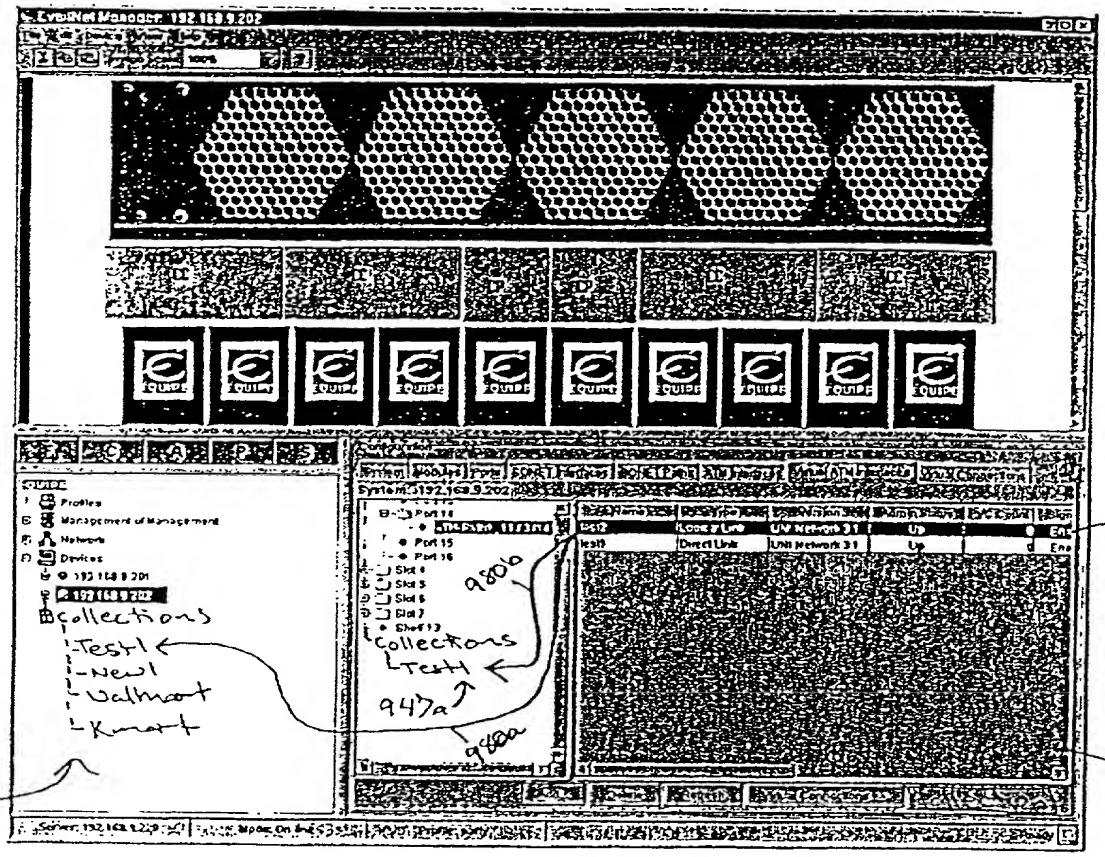

895
collections
Test1
New1
Walmart
Kmart
898
collections
Test1
947a
980a
980b
978b
897

Fig. 10g

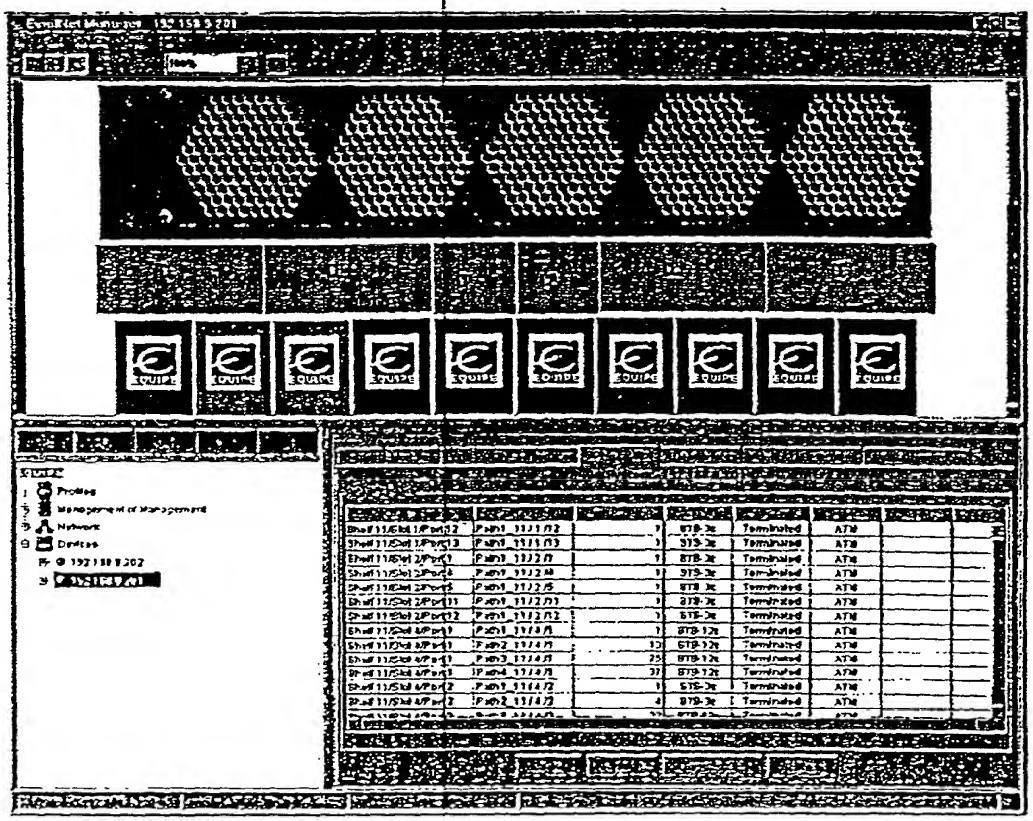


Fig. 10h

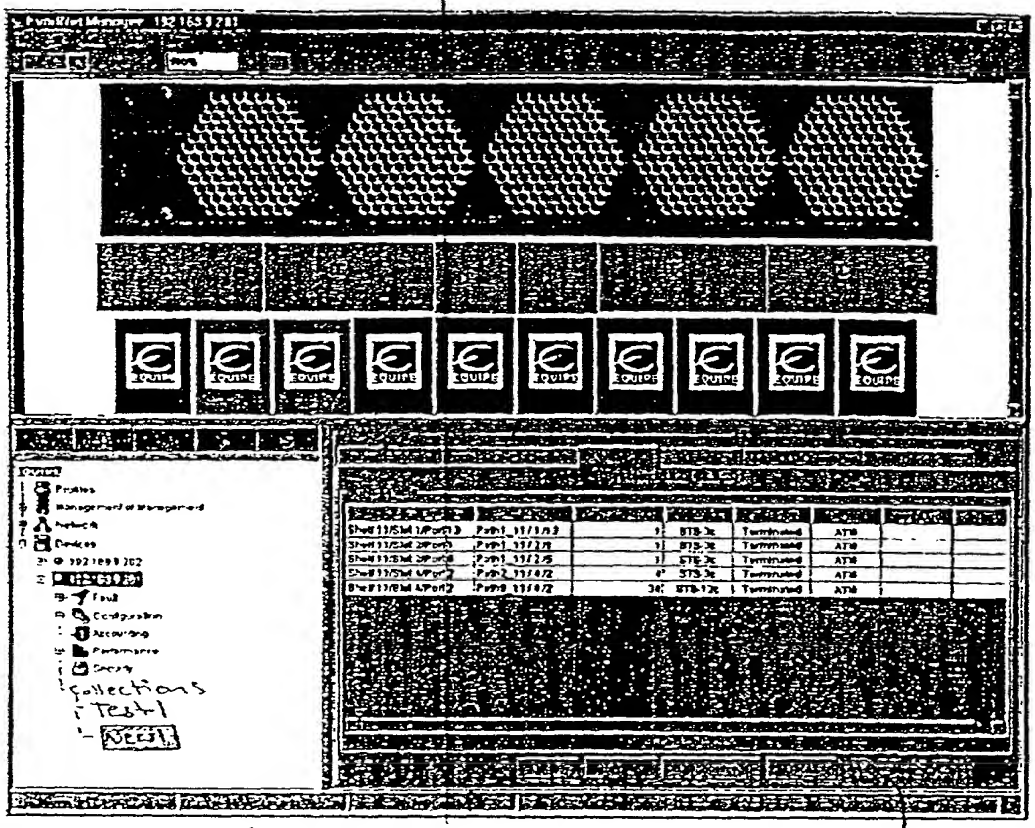


Fig. 10i

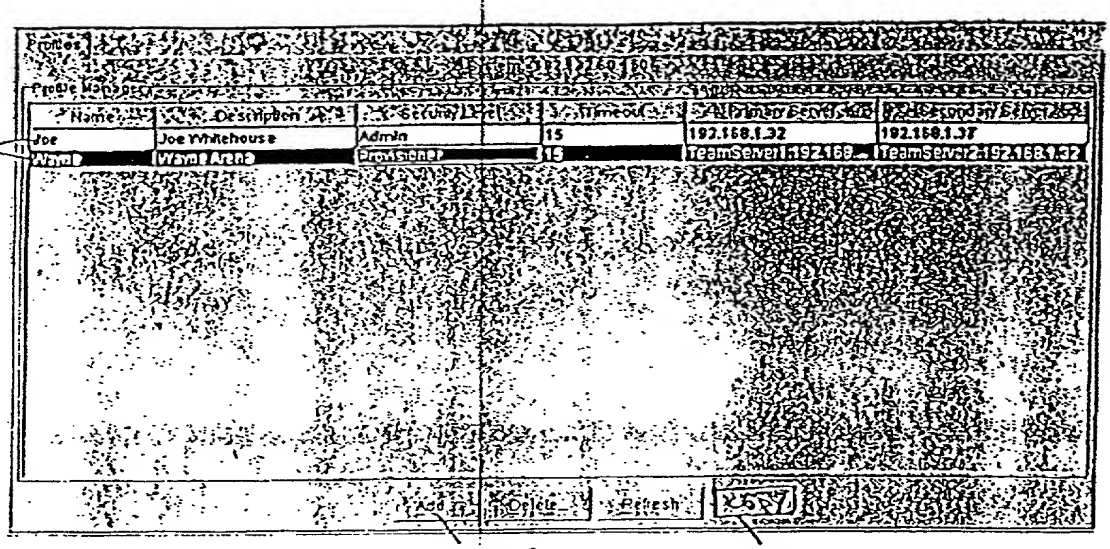

Name
Description
Security Level
Timeout
Joe
Joe Whitehouse
Admin
15
192.168.1.32
904
905
906

Fig. 11a

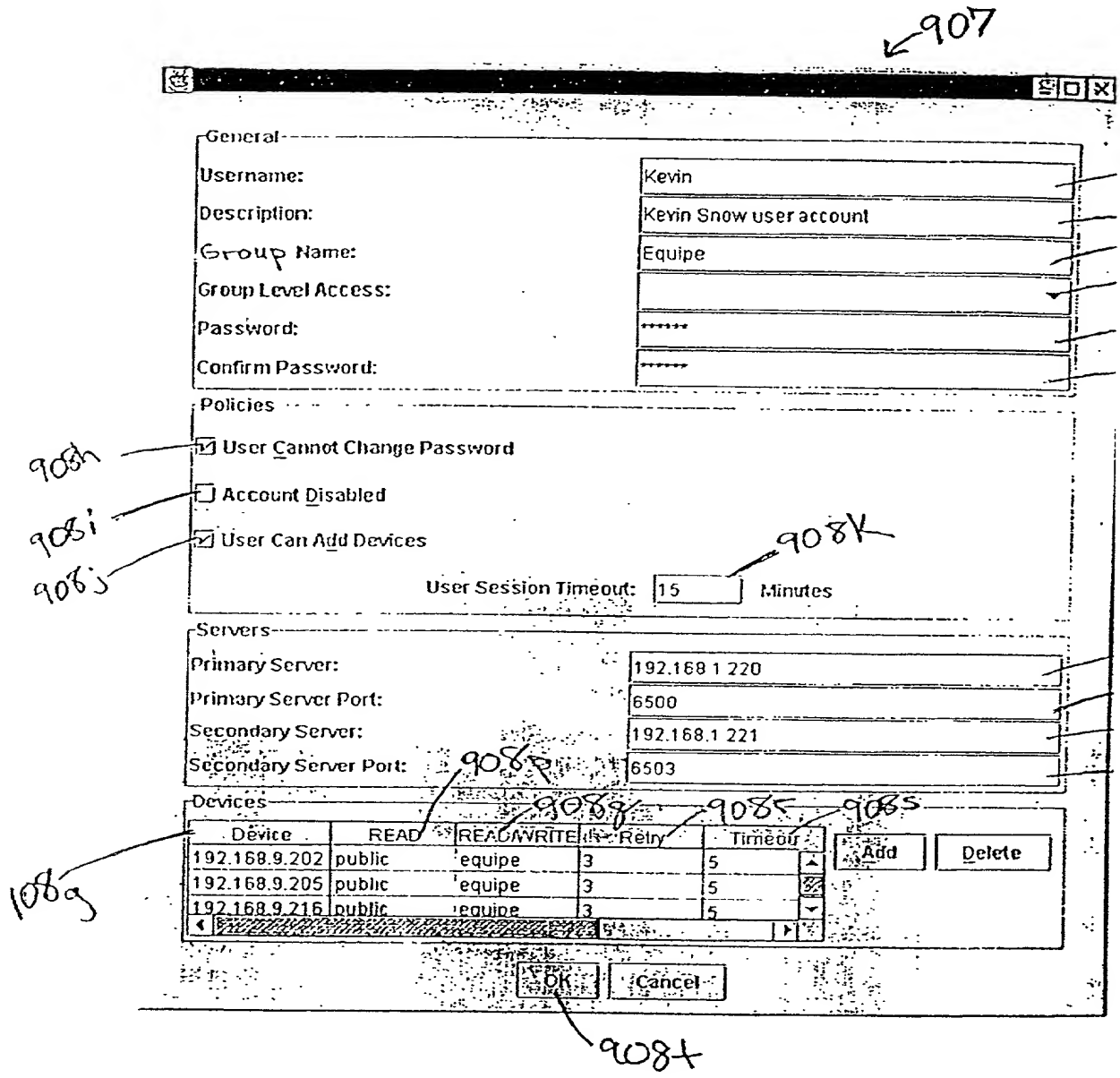
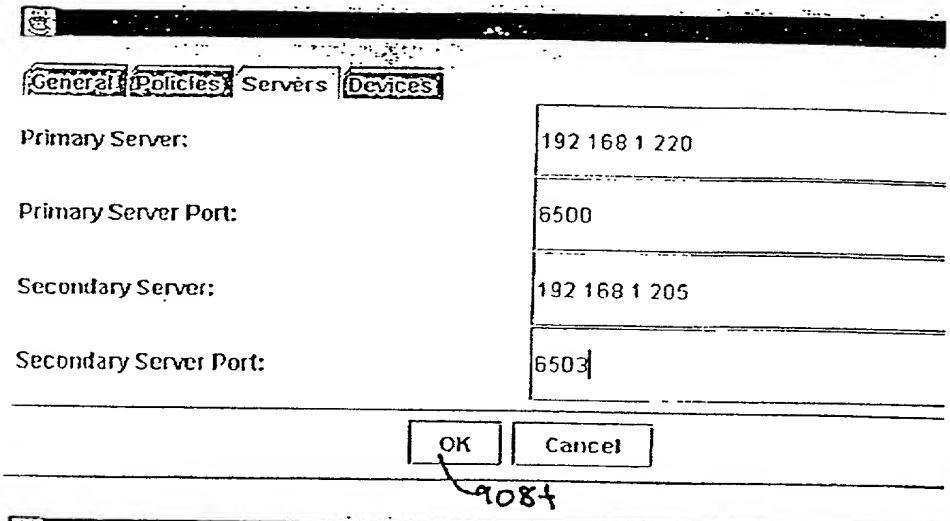

907
General
Username:
Kevin
Description:
Kevin Snow user account
Group Name:
Equipe
Group Level Access:
Password:
Confirm Password:
Policies
User Cannot Change Password
Account Disabled
User Can Add Devices
User Session Timeout:
15
Minutes
Servers
Primary Server:
192.168.1.220
Primary Server Port:
6500
Secondary Server:
192.168.1.221
Secondary Server Port:
6503
Devices
Device
READ
READ/WRITE
Retry
Timeout
192.168.9.202
public
equipe
3
5
192.168.9.205
public
equipe
3
5
192.168.9.216
public
equipe
3
5
Add
Delete
OK
Cancel
908h
908i
908j
908k
908p
908q
908r
908s
908g
908t

Fig. 11b

Fig 11c



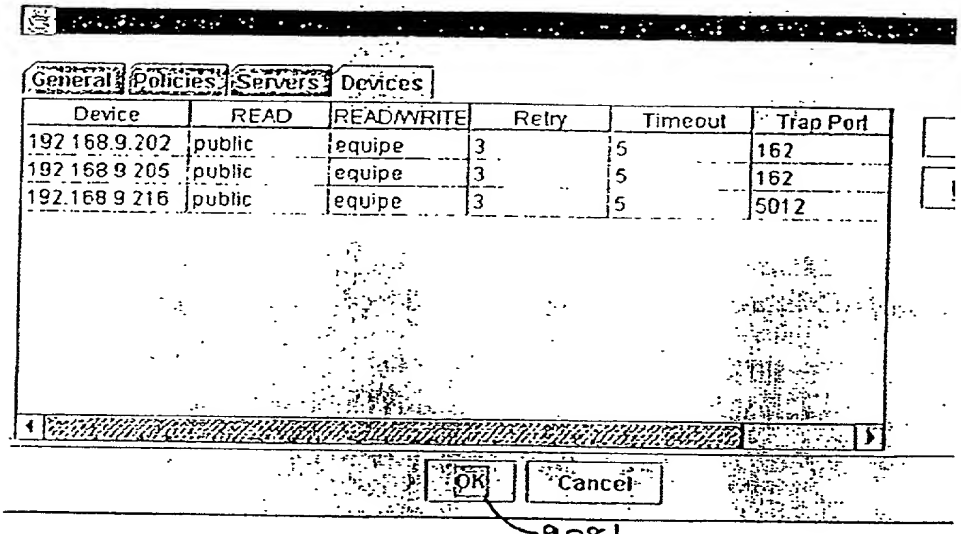
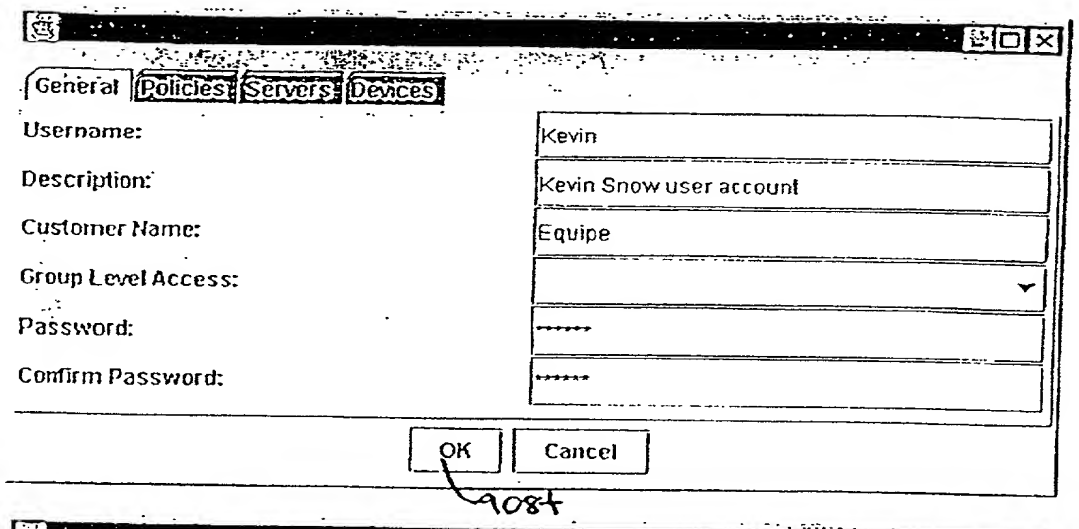


Fig 11d

Fig.11e



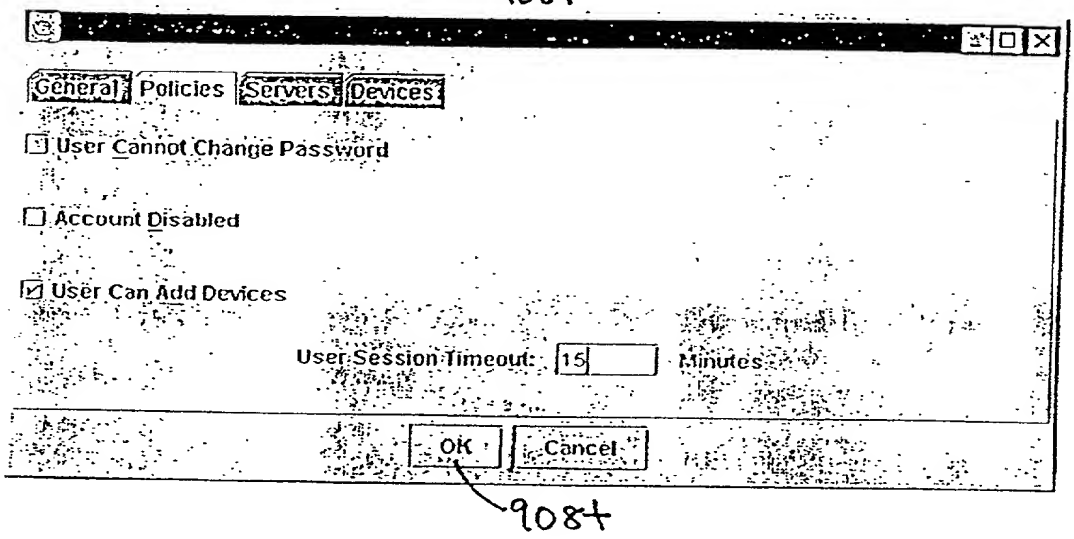


Fig.11f

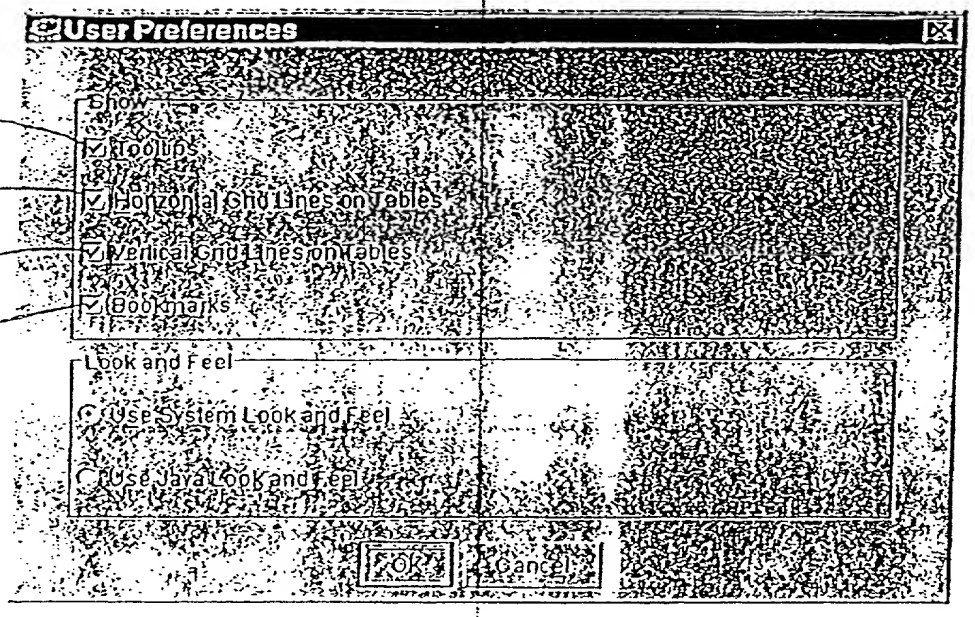

User Preferences
Show
ToolTips
Horizontal Grid Lines on Tables
Vertical Grid Lines on Tables
Bookmarks
Look and Feel
Use System Look and Feel
Use Java Look and Feel
OK
Cancel
0a
0b
0c
0d

Fig. 11g

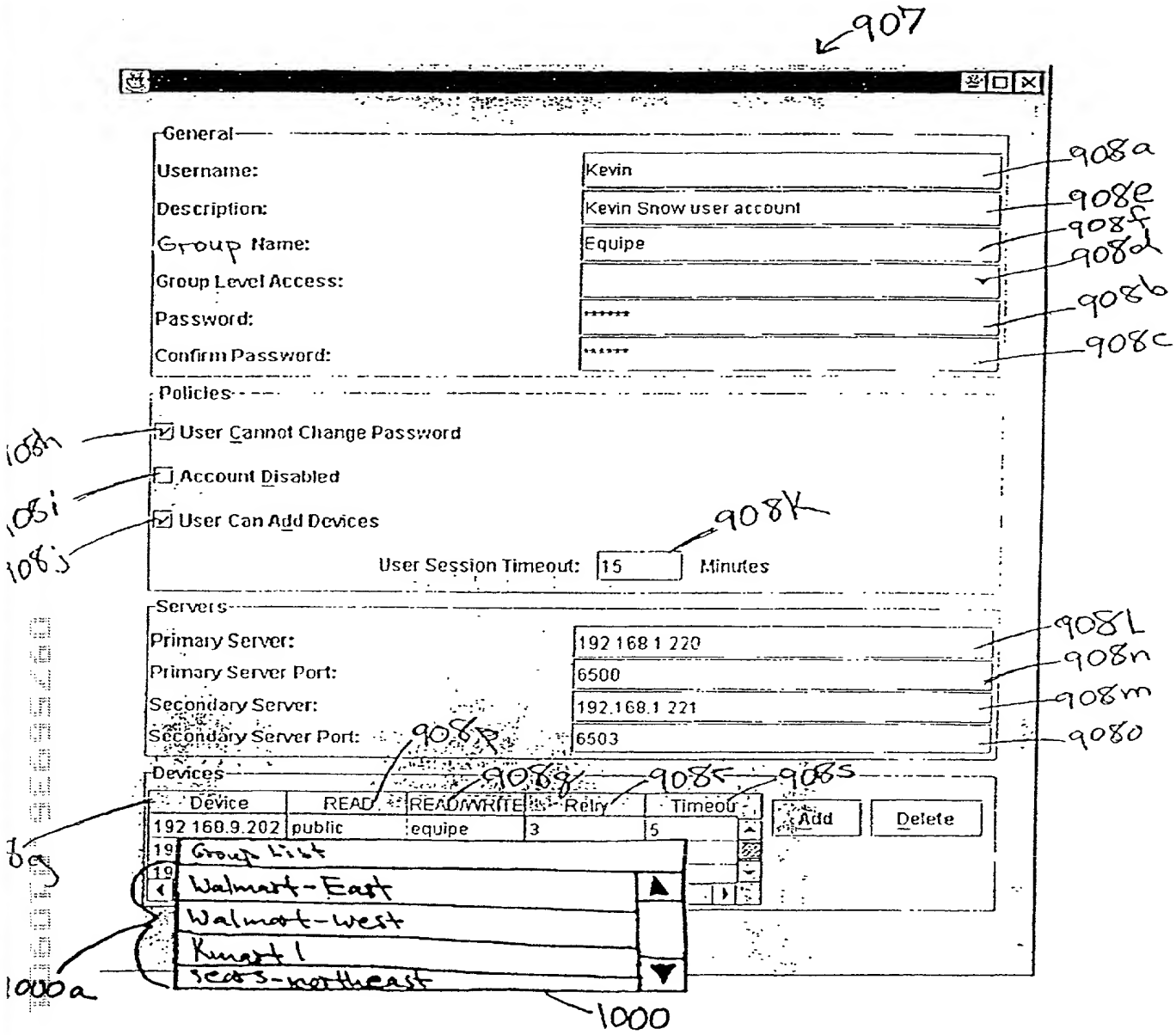

907
General
Username:
Kevin
908a
Description:
Kevin Snow user account
908e
Group Name:
Equipe
908f
Group Level Access:
908d
Password:
908b
Confirm Password:
908c
Policies
User Cannot Change Password
User Can Add Devices
User Session Timeout:
15
Minutes
908K
Servers
Primary Server:
192.168.1.220
908L
Primary Server Port:
6500
908n
Secondary Server:
192.168.1.221
908m
Secondary Server Port:
6503
908o
Devices
Device
READ
READ/WRITE
Retry
Timeout
Add
Delete
192.168.9.202
public
equipe
3
5
Group List
Walmart-East
Walmart-west
Kmart
sears-northeast
1000
1000a

Fig. 11h

Fig. 11i

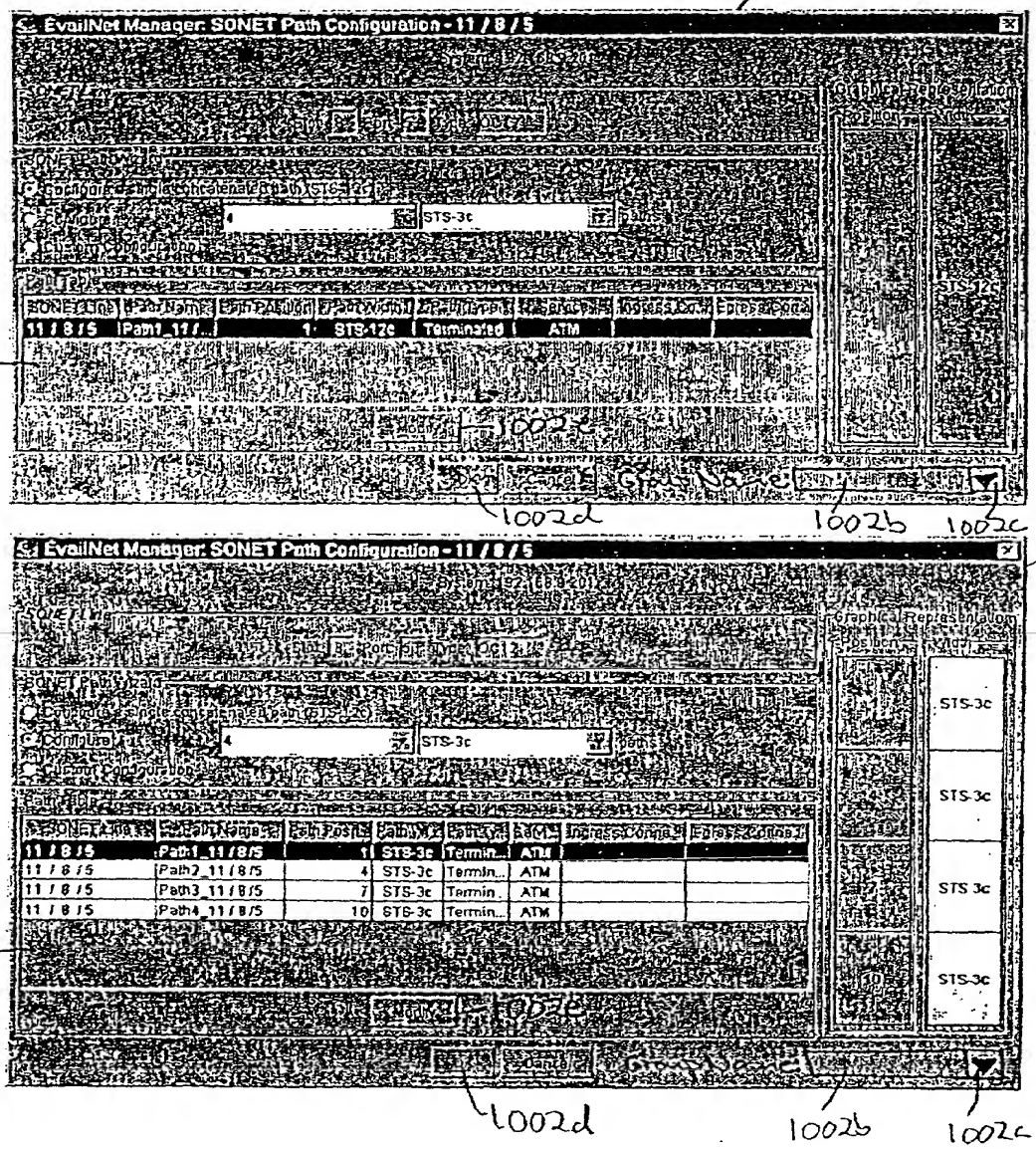
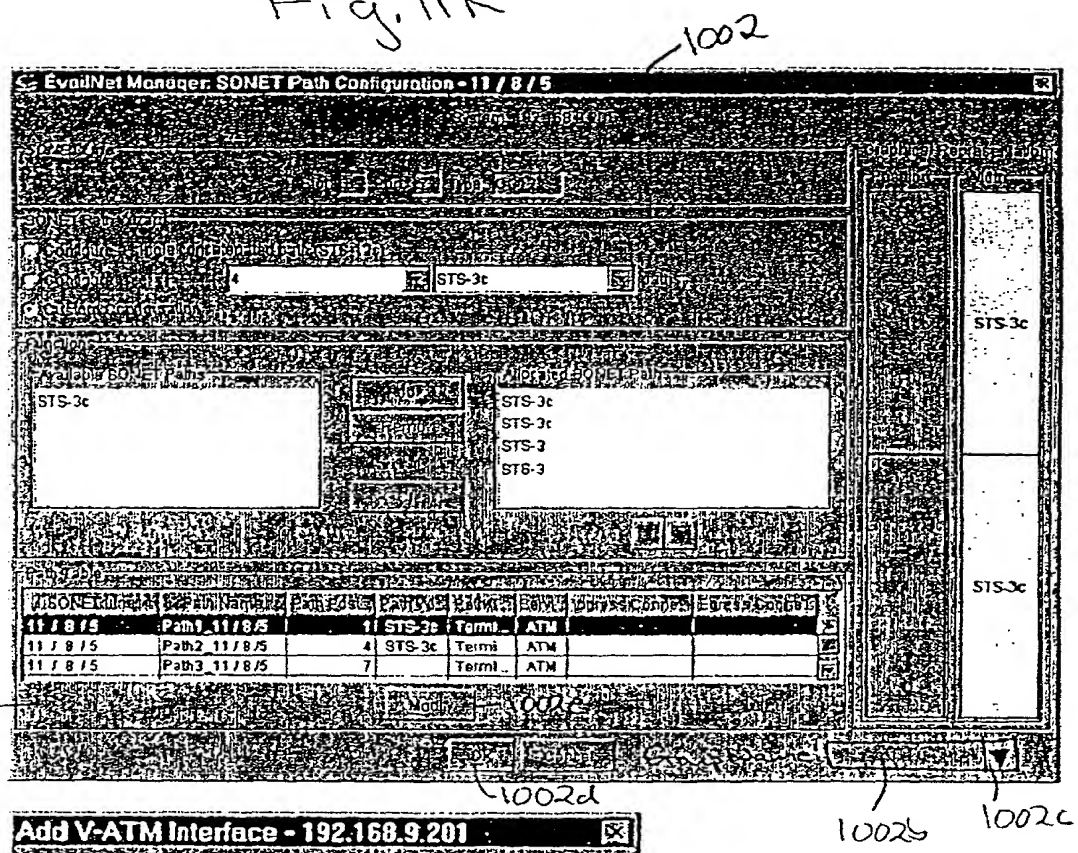


Fig. 11j

Fig. 11K



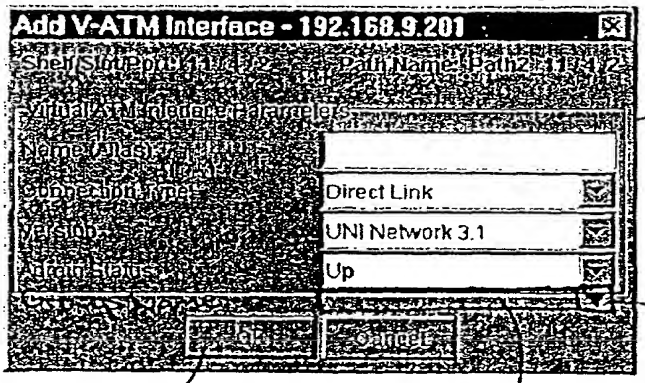


Fig. 11n

Fig. 11L

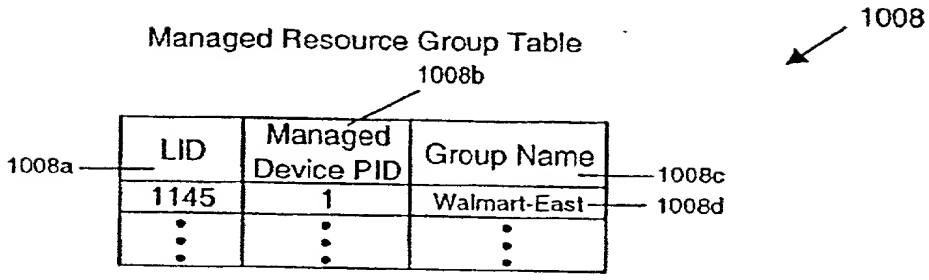
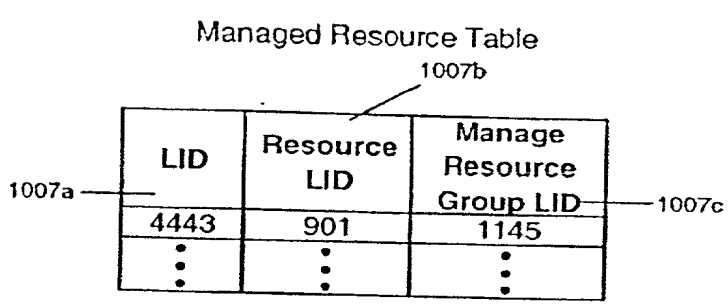


Fig. 11M



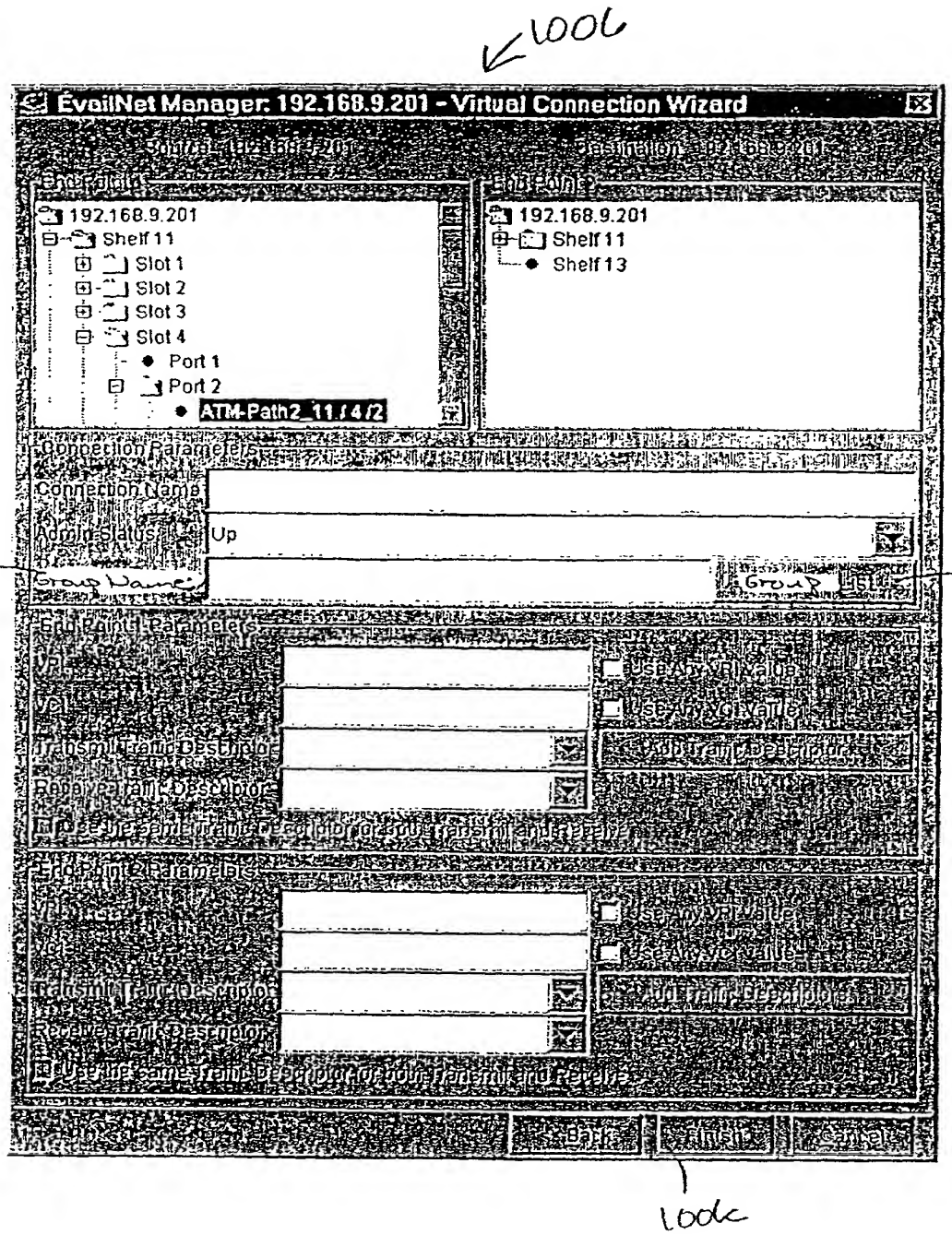

1006
EvailNet Manager: 192.168.9.201 - Virtual Connection Wizard
End Point 1
192.168.9.201
Shelf 11
Slot 1
Slot 2
Slot 3
Slot 4
Port 1
Port 2
ATM-Path2_11/4/2
End Point 2
192.168.9.201
Shelf 11
Shelf 13
Connection Parameters
Connection Name
Admin Status
Up
Group Name
Group List
1006a
1006b
End Point 1 Parameters
VPI
VCI
Transmit Traffic Descriptor
Receive Traffic Descriptor
Use Any VPI Value
Use Any VCI Value
Add Traffic Descriptor
Use the same Traffic Descriptor for both Transmit and Receive
End Point 2 Parameters
VPI
VCI
Transmit Traffic Descriptor
Receive Traffic Descriptor
Use Any VPI Value
Use Any VCI Value
Add Traffic Descriptor
Use the same Traffic Descriptor for both Transmit and Receive
Help
Back
Finish
Cancel
1006c

Fig. 11a

Fig. 11p

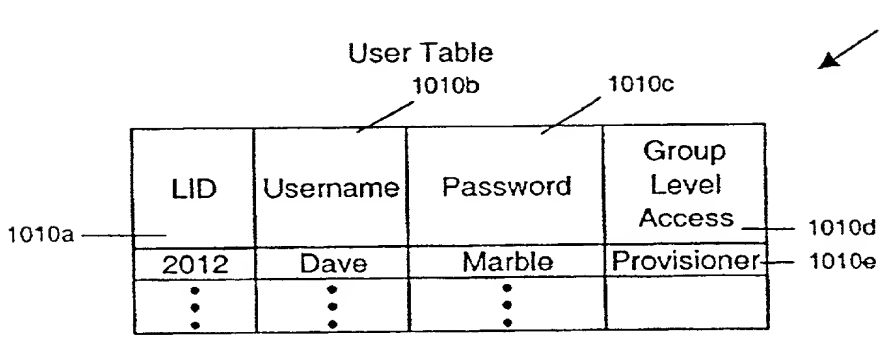


Fig. 11q

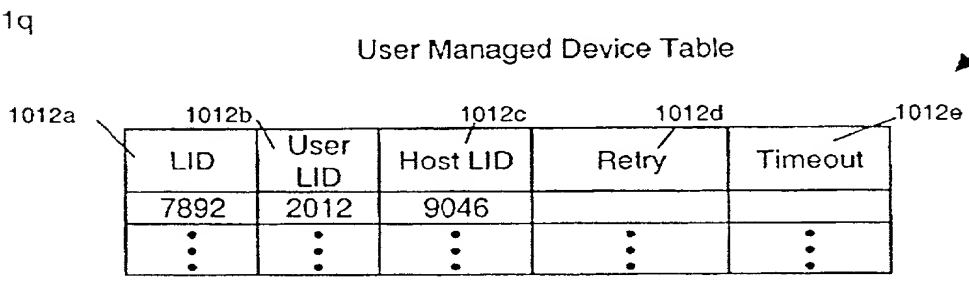


Fig. 11r

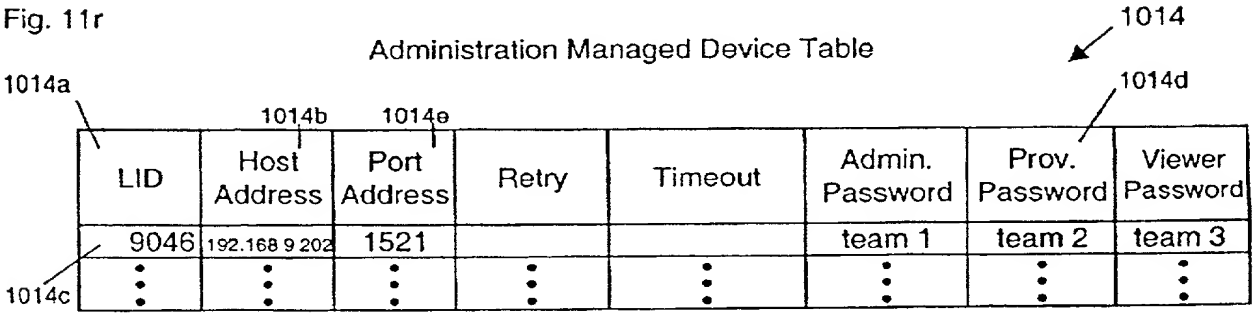


Fig. 11s

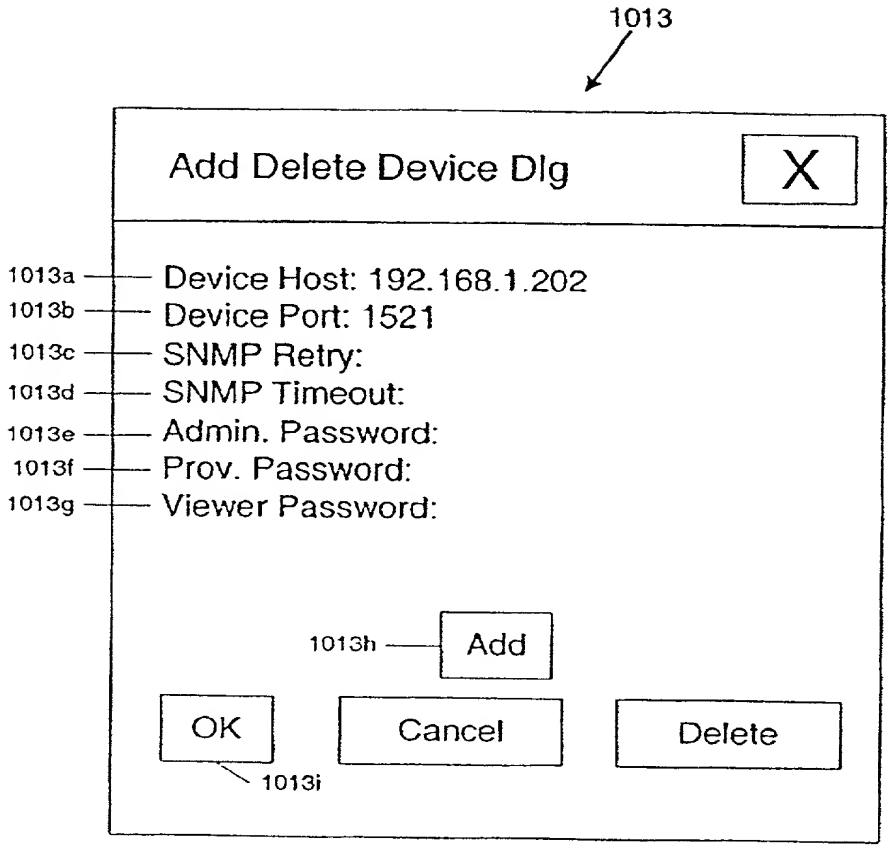

1013
Add Delete Device Dlg
X
1013a
Device Host: 192.168.1.202
1013b
Device Port: 1521
1013c
SNMP Retry:
1013d
SNMP Timeout:
1013e
Admin. Password:
1013f
Prov. Password:
1013g
Viewer Password:
1013h
Add
OK
Cancel
Delete
1013i

Fig. 11t

User Resource Group Map Table

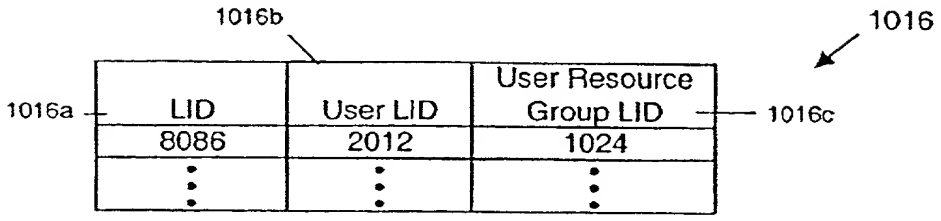
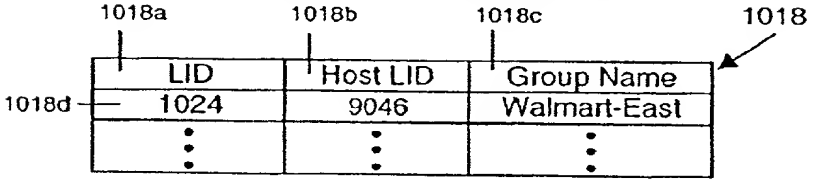


Fig. 11u

User Resource Group Table



FOGTFO 96095260

Fig. 11v

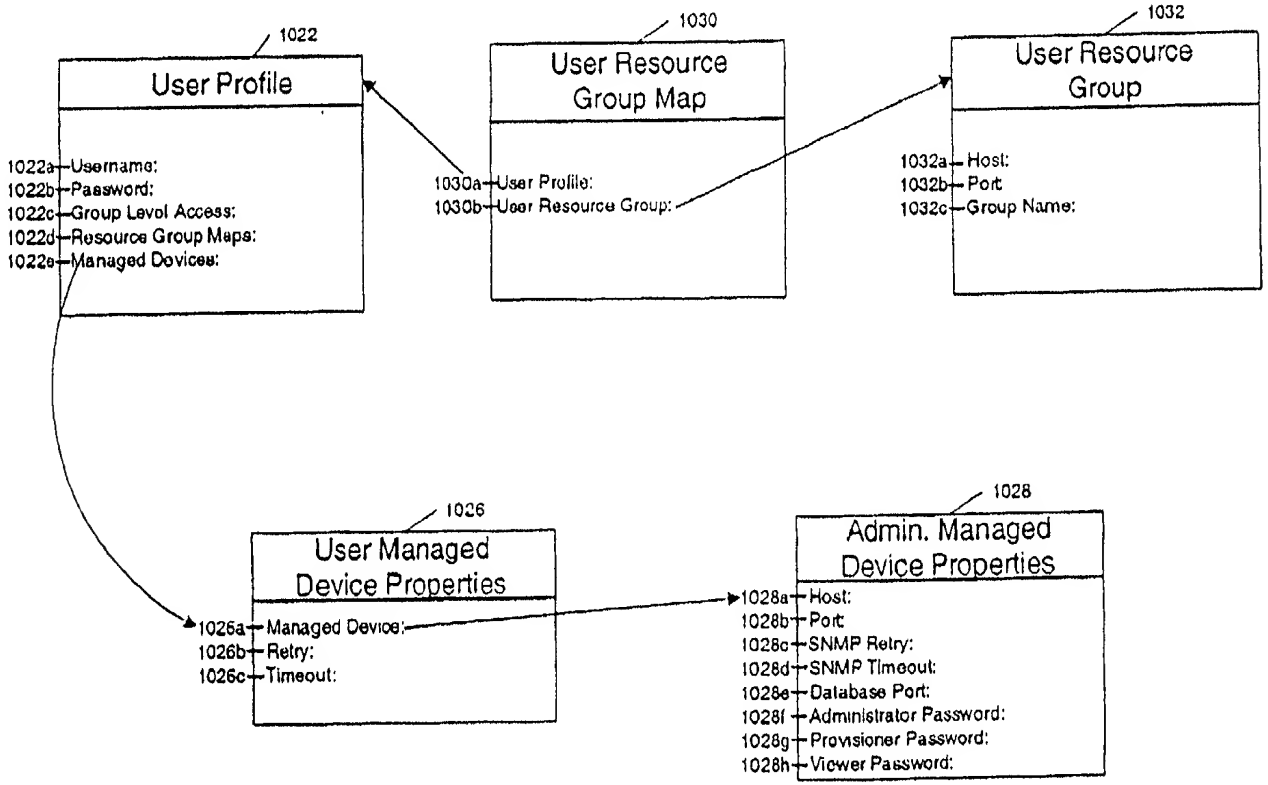


Fig. 11w

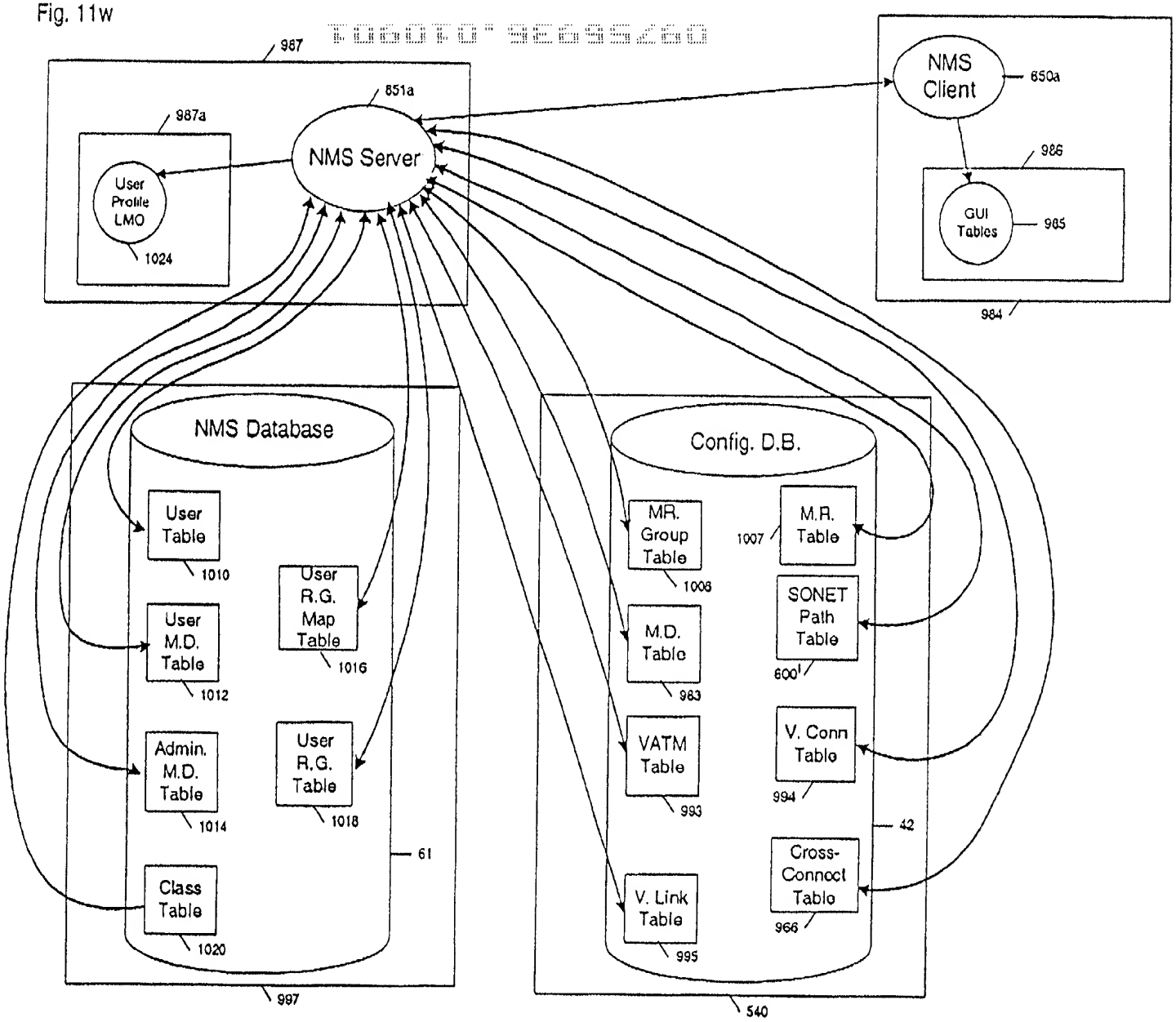

987
851a
987a
NMS Server
User Profile LMO
1024
NMS Client
650a
986
GUI Tables
985
984
NMS Database
User Table
1010
User R.G. Map Table
1016
User M.D. Table
1012
Admin. M.D. Table
1014
User R.G. Table
1018
Class Table
1020
61
997
Config. D.B.
MR. Group Table
1008
M.R. Table
1007
SONET Path Table
600'
M.D. Table
983
VATM Table
993
V. Conn Table
994
42
Cross-Connect Table
966
V. Link Table
995
540

Fig. 11x

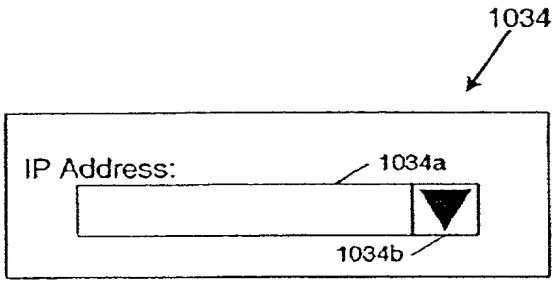
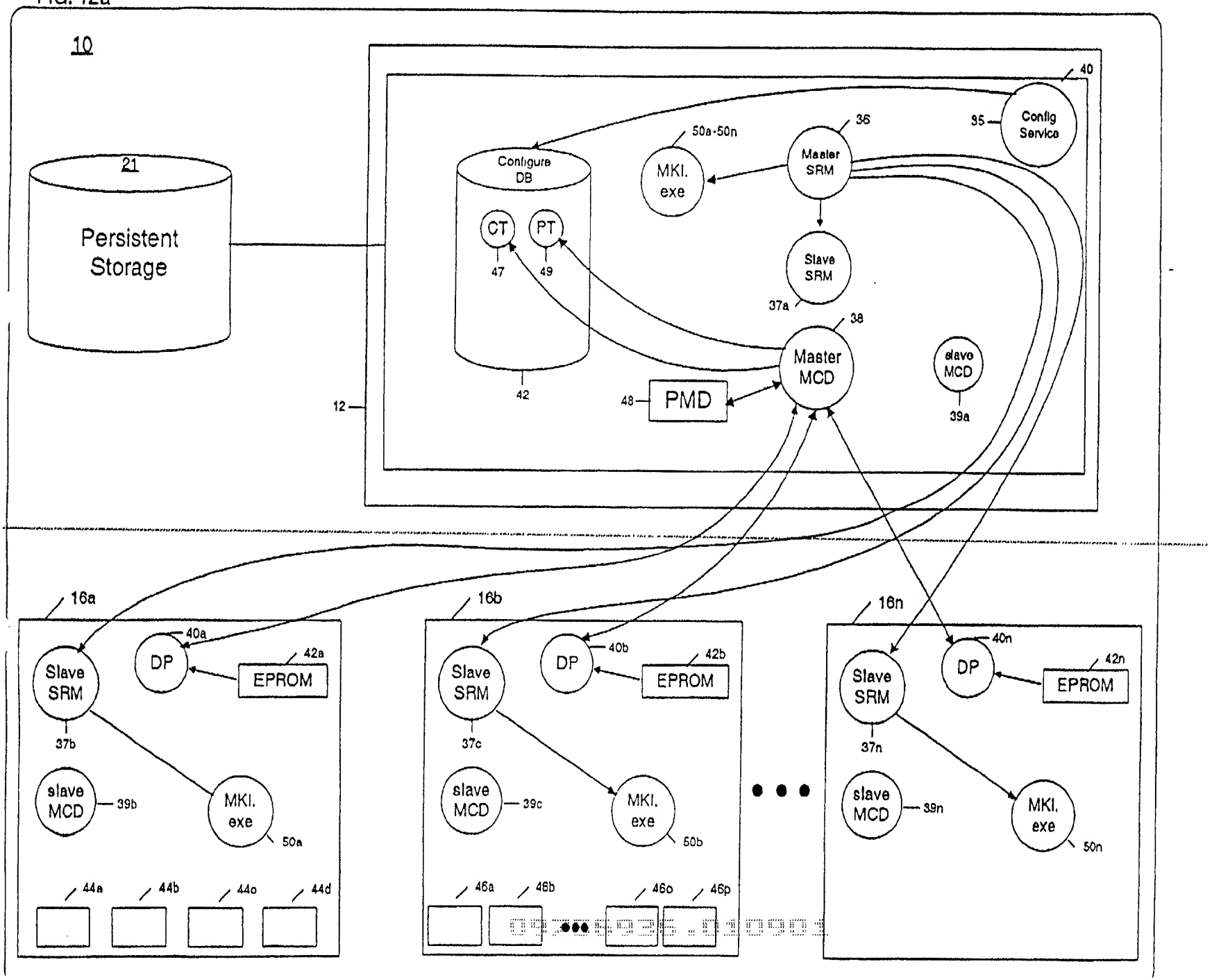


FIG. 12a


10
21
Persistent Storage
40
Config Service
35
Master SRM
36
50a-50n
MKI. exe
Configure DB
CT
PT
47
49
Slave SRM
37a
38
Master MCD
slave MCD
39a
48
PMD
42
12
16a
16b
16n
Slave SRM
37b
DP
40a
EPROM
42a
slave MCD
39b
MKI. exe
50a
44a
44b
44o
44d
Slave SRM
37c
DP
40b
EPROM
42b
slave MCD
39c
MKI. exe
50b
46a
46b
46o
46p
Slave SRM
37n
DP
40n
EPROM
42n
slave MCD
39n
MKI. exe
50n

CARD TABLE

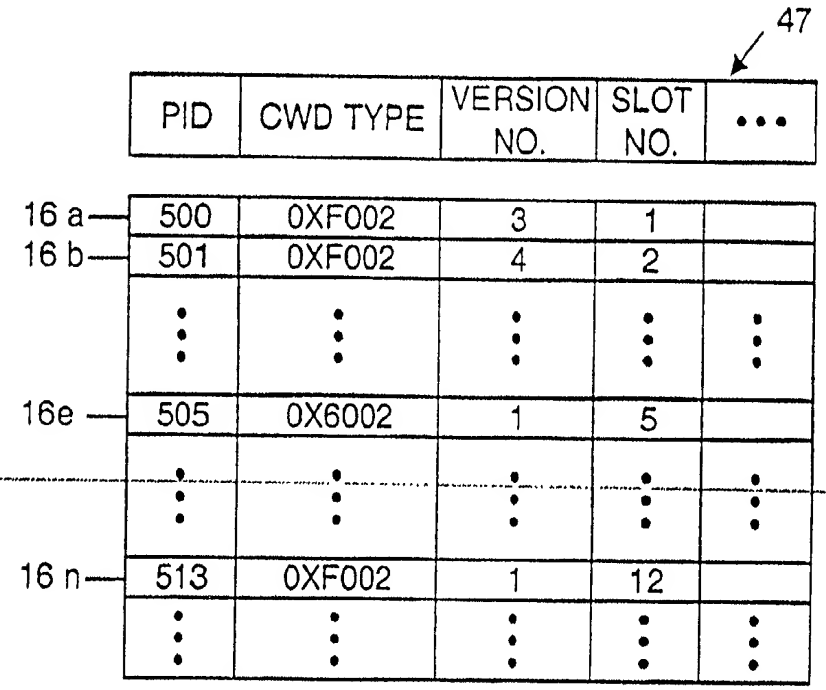


FIG. 12b

09755936 .010901

PORT TABLE

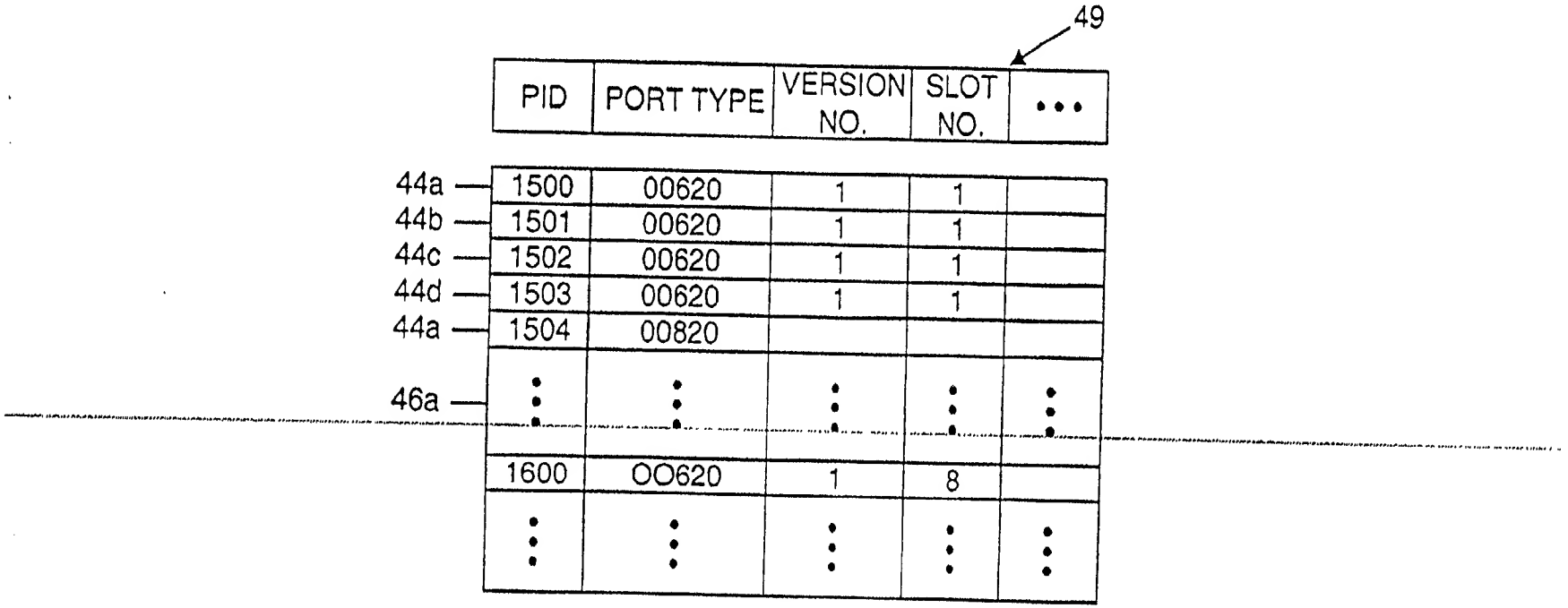


FIG. 12c

09755935 .010901

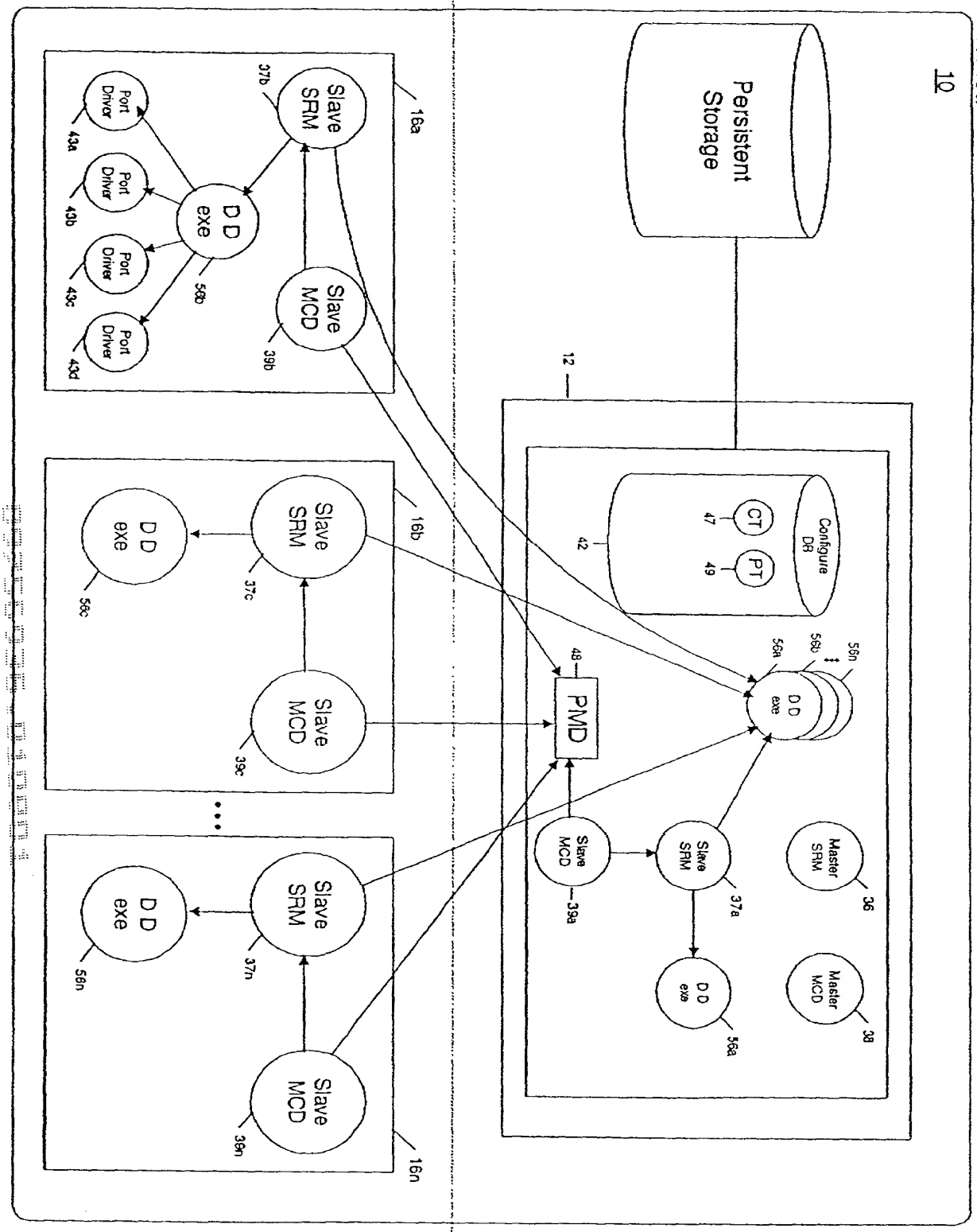

10
Persistent Storage
12
Configure DR
42
CT
47
PT
49
PMD
48
DD exe
56a
56b
56n
Master SRM
36
Master MCD
38
Slave SRM
37a
Slave MCD
39a
DD exe
56a
16a
Slave SRM
37b
Slave MCD
39b
DD exe
56b
Port Driver
43a
Port Driver
43b
Port Driver
43c
Port Driver
43d
16b
Slave SRM
37c
Slave MCD
39c
DD exe
56c
16n
Slave SRM
37n
Slave MCD
39n
DD exe
56n

FIG. 13a

FIG. 13b

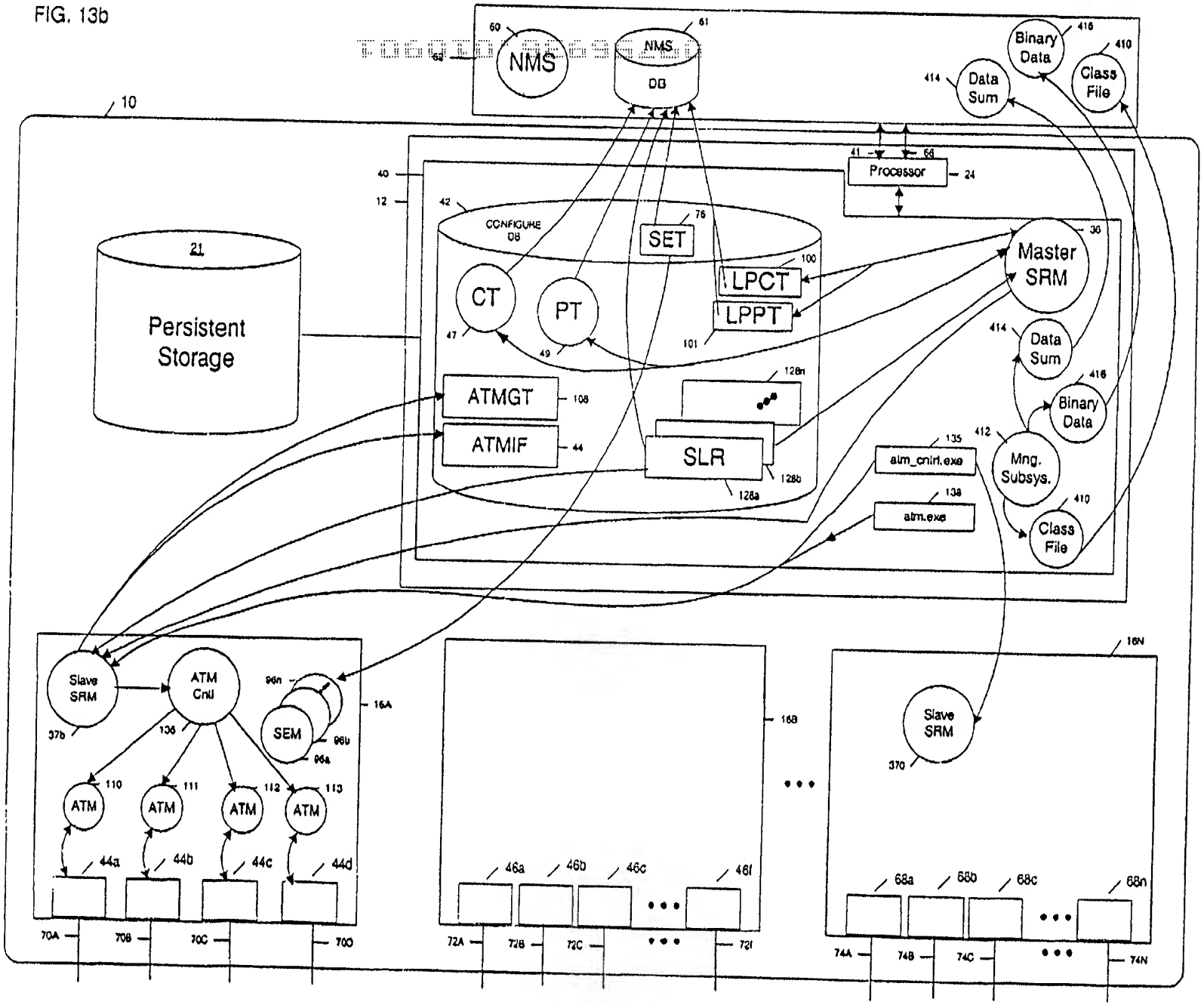

NMS
DB
Binary Data
Class File
Data Sum
Processor
CONFIGURE DB
SET
LPCT
LPPT
CT
PT
Master SRM
Persistent Storage
ATMGT
ATMIF
SLR
Data Sum
Binary Data
Mng. Subsys.
Class File
atm_cnirl.exe
atm.exe
Slave SRM
ATM Cntl
SEM
ATM
Slave SRM
Slave SRM

Fig. 13c

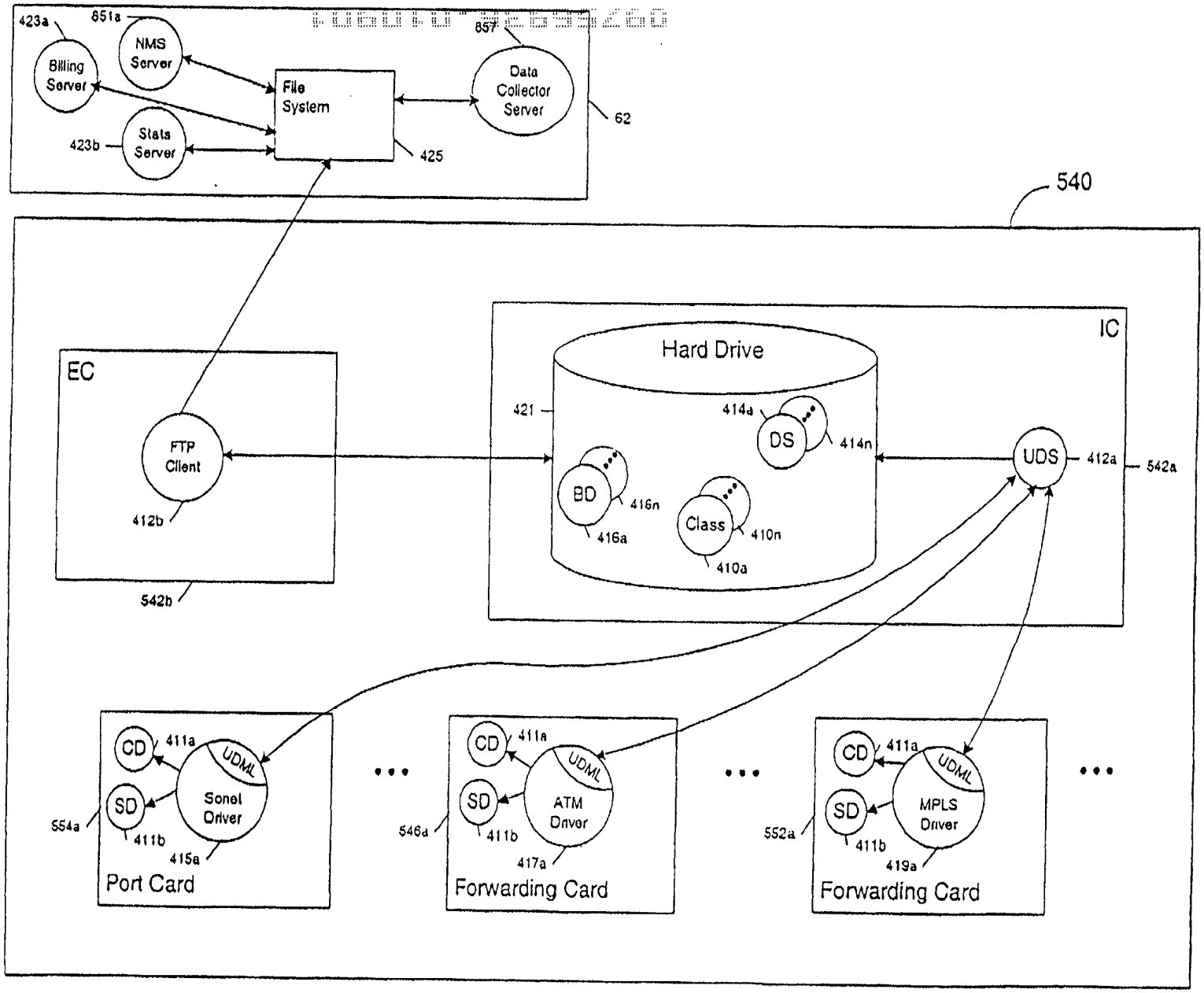

423a
851a
NMS Server
Billing Server
File System
857
Data Collector Server
62
423b
Stats Server
425
540
EC
FTP Client
412b
542b
IC
Hard Drive
421
414a
DS
414n
UDS
412a
542a
BD
416n
416a
Class
410n
410a
CD
411a
UDML
SD
411b
Sonet Driver
415a
554a
Port Card
ATM Driver
417a
546a
Forwarding Card
MPLS Driver
419a
552a
Forwarding Card

Fig. 13d

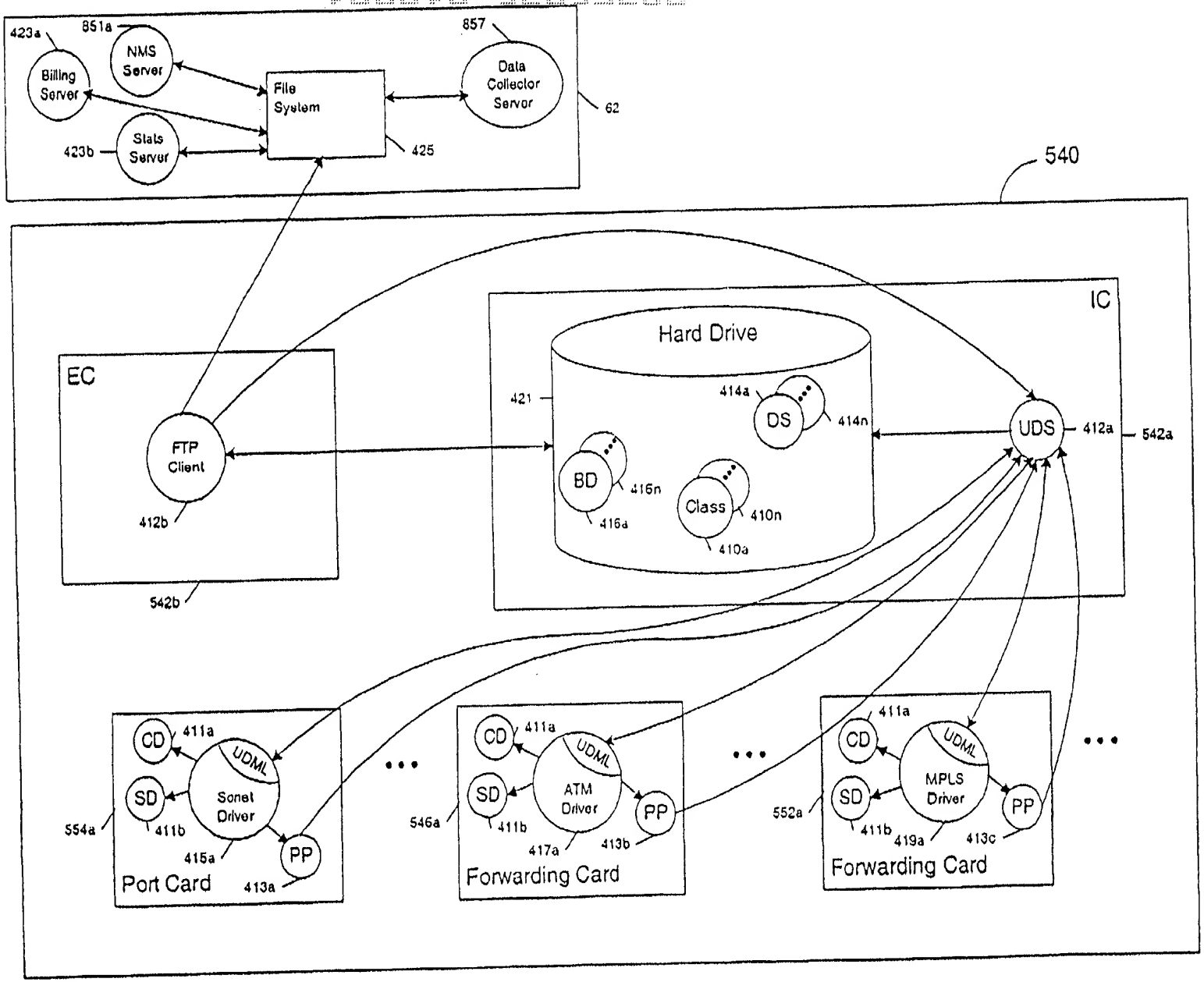

423a
851a
NMS Server
857
Billing Server
File System
Data Collector Server
62
Stats Server
423b
425
540
IC
Hard Drive
EC
421
414a
DS
414n
UDS
412a
542a
FTP Client
412b
BD
416n
416a
Class
410n
410a
542b
CD
411a
UDML
SD
Sonet Driver
411b
554a
415a
PP
413a
Port Card
546a
ATM Driver
417a
413b
Forwarding Card
552a
MPLS Driver
419a
413c

FIG. 14a

Service Endpoint Table 76

	Service Endpoint #	Port PID
78	1	1500
80	2	1501
82	3	1501
84	4	1501
86	5	1502
88	6	1502
90	7	1503
92	8	1503
94	9	1503
168	10	1502
	⋮	⋮

FIG. 14b

Logical to Physical Card Table 100

	LID (98)	Primary PID (102)	Back-up PID (104)
106	30	500	513
109	31	501	513
	⋮	⋮	⋮

FIG. 14c

Logical to Physical Port Table 101

	LID (98)	Primary PID (102)	Back-up PID (104)
107	40	1500	1600
	⋮	⋮	⋮

FIG. 14d

ATM Group Table 108

Group #	Card LID	•••
1	30	
2	30	
3	30	
4	30	

FIG. 14e

ATM Interface Table 114

ATM IF	ATM Group	SE	•••
1	1	1	
2	1	1	
3	1	1	
4	2	2	
5	2	3	
6	2	4	
⋮	⋮	⋮	⋮
12	3	10	
⋮	⋮	⋮	⋮

170

FIG. 14f

Software Load Record 128a

Control Shim	LID
atm-cntl.exe	30

130 134 132

FIG. 15

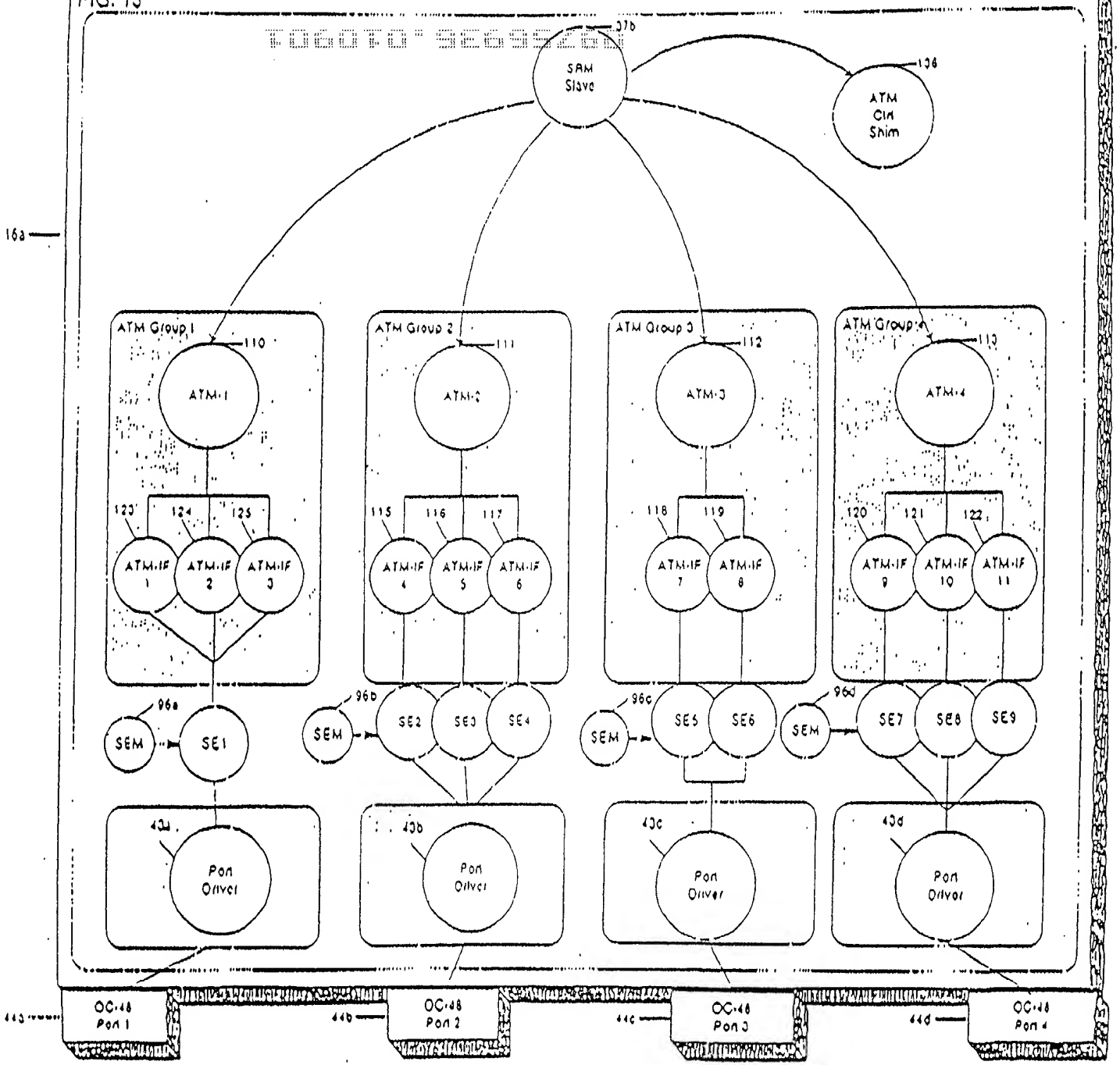

SAM Slave
ATM Cim Shim
ATM Group 1
ATM Group 2
ATM Group 3
ATM Group 4
ATM-1
ATM-2
ATM-3
ATM-4
ATM-IF 1
ATM-IF 2
ATM-IF 3
ATM-IF 4
ATM-IF 5
ATM-IF 6
ATM-IF 7
ATM-IF 8
ATM-IF 9
ATM-IF 10
ATM-IF 11
SEM
SE1
SE2
SE3
SE4
SE5
SE6
SE7
SE8
SE9
Pon Driver
OC-48 Pon 1
OC-48 Pon 2
OC-48 Pon 3
OC-48 Pon 4

FIG. 16a

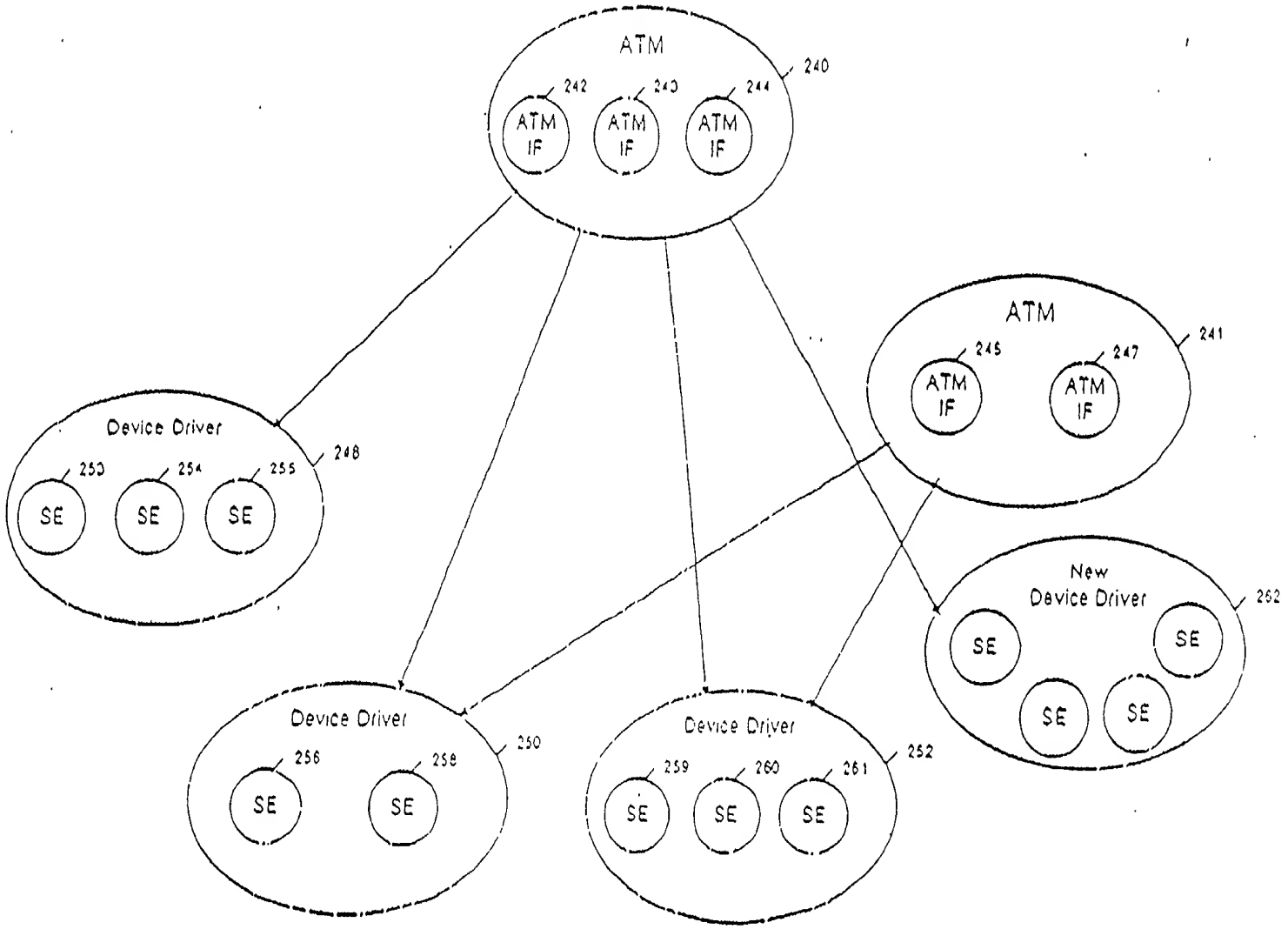

ATM
240
242
243
244
ATM IF
ATM IF
ATM IF
ATM
241
245
247
ATM IF
ATM IF
Device Driver
248
253
254
255
SE
SE
SE
New Device Driver
262
SE
SE
SE
SE
Device Driver
250
256
258
SE
SE
Device Driver
252
259
260
261
SE
SE
SE

FIG. 16b

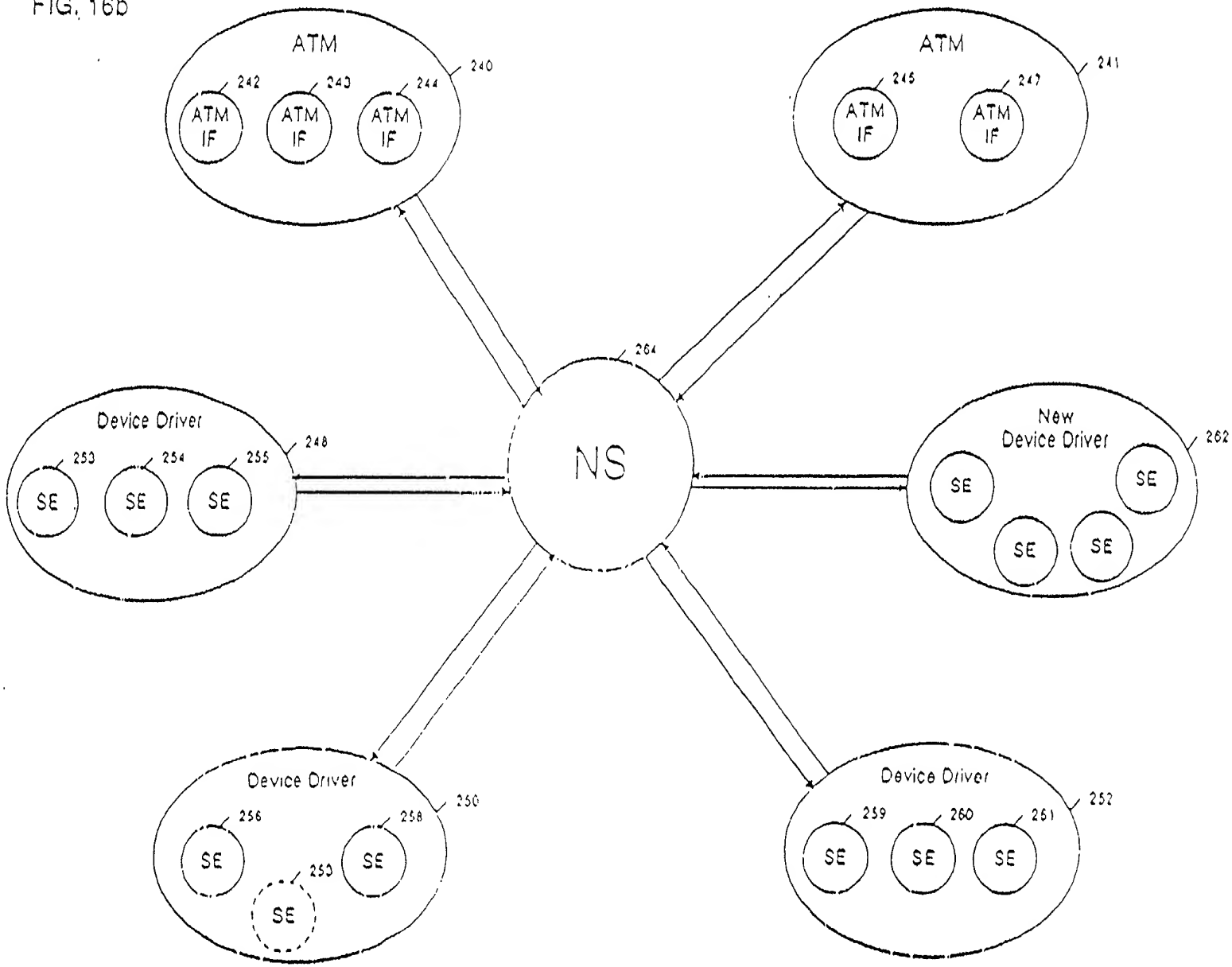

ATM
240
242
ATM IF
243
ATM IF
244
ATM IF
ATM
241
245
ATM IF
247
ATM IF
264
NS
Device Driver
248
253
SE
254
SE
255
SE
New Device Driver
262
SE
SE
SE
SE
Device Driver
250
256
SE
258
SE
257
SE
Device Driver
252
259
SE
260
SE
261
SE

Fig. 11ec.

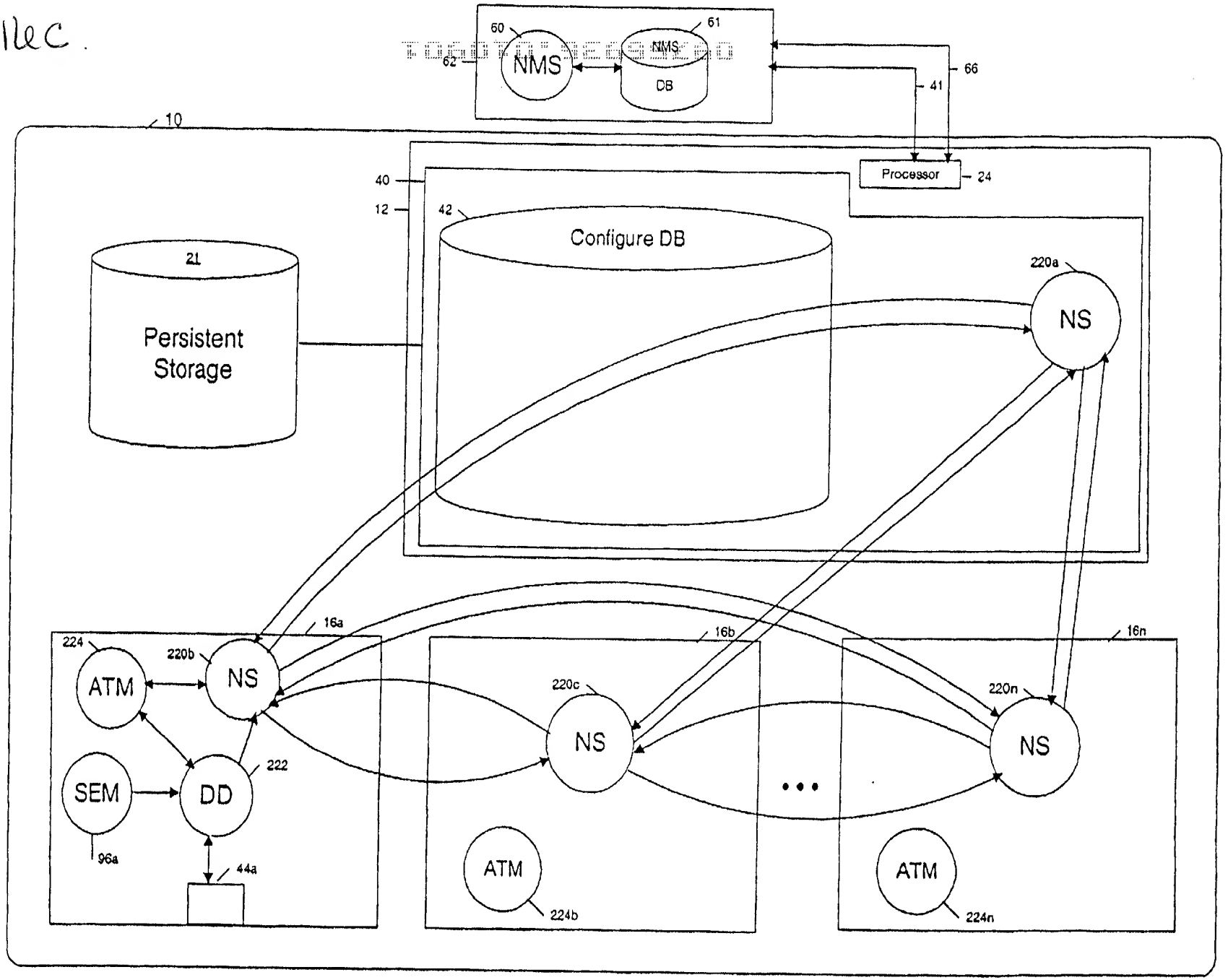
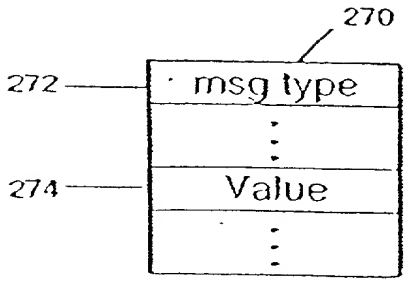

60
NMS
61
NMS
62
DB
66
41
10
Processor
24
40
12
42
Configure DB
21
Persistent Storage
220a
NS
16a
16b
16n
224
ATM
220b
NS
220c
NS
220n
NS
SEM
DD
222
96a
44a
ATM
224b
ATM
224n

FIG
16d



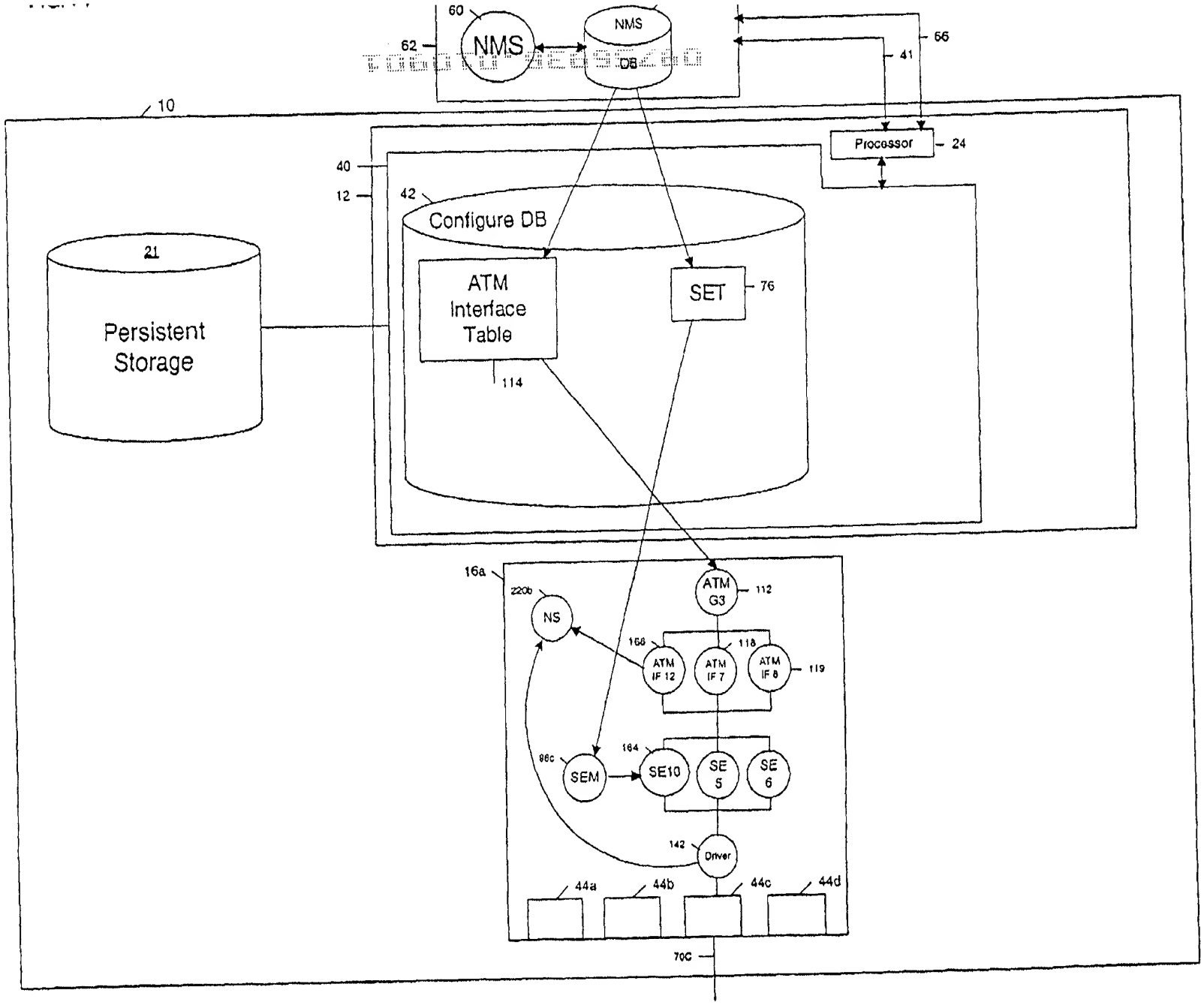
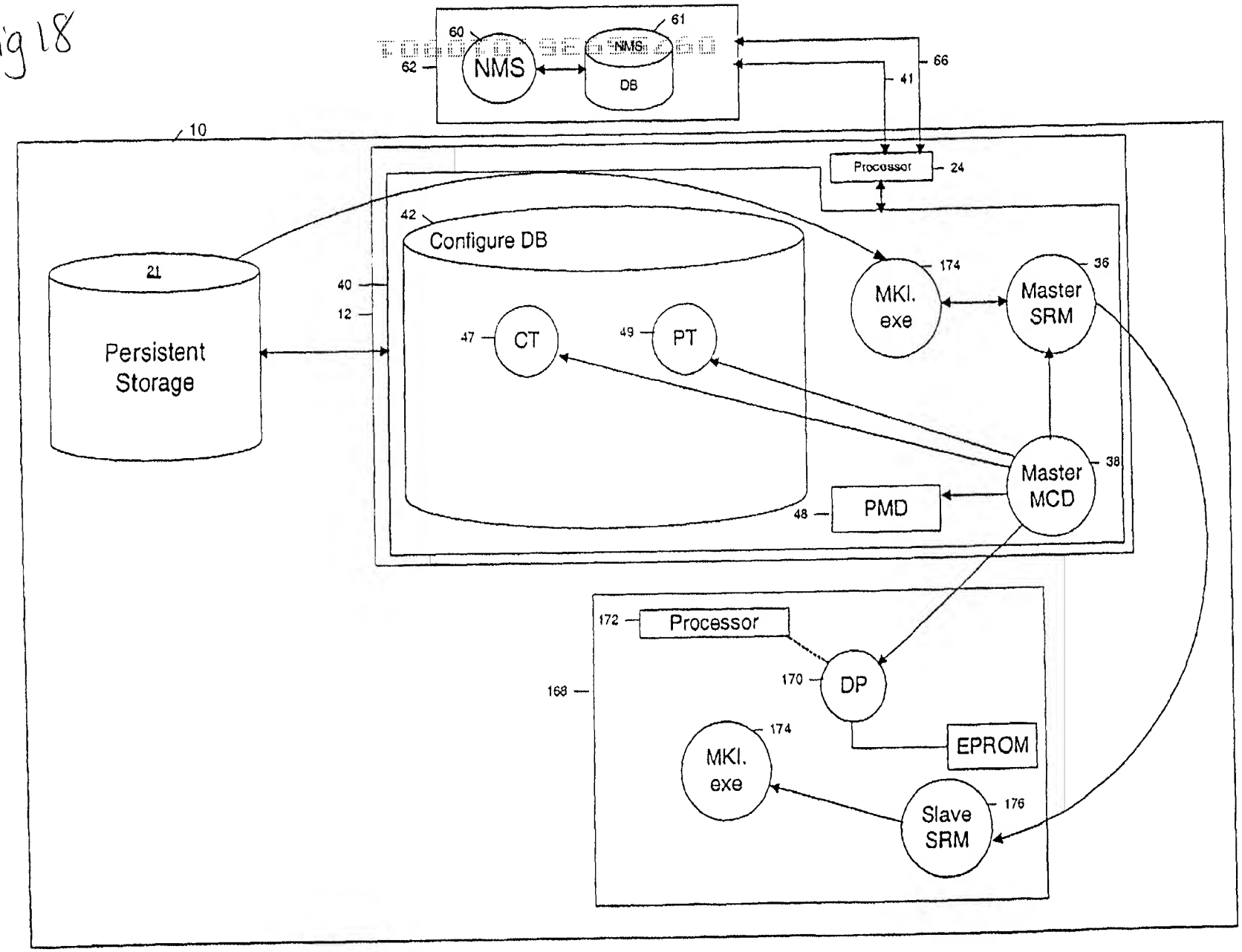

60
NMS
62
NMS
DB
66
41
10
Processor
24
40
12
42
Configure DB
21
Persistent Storage
ATM Interface Table
114
SET
76
16a
220b
NS
ATM G3
112
168
118
ATM IF 12
ATM IF 7
ATM IF 8
119
164
96c
SEM
SE10
SE 5
SE 6
142
Driver
44a
44b
44c
44d
70C

Fig 18


60
61
NMS
NMS
DB
62
66
41
10
Processor
24
42
Configure DB
21
Persistent Storage
40
12
47
CT
49
PT
MKI. exe
174
Master SRM
36
Master MCD
38
PMD
48
172
Processor
DP
170
168
EPROM
MKI. exe
174
Slave SRM
176

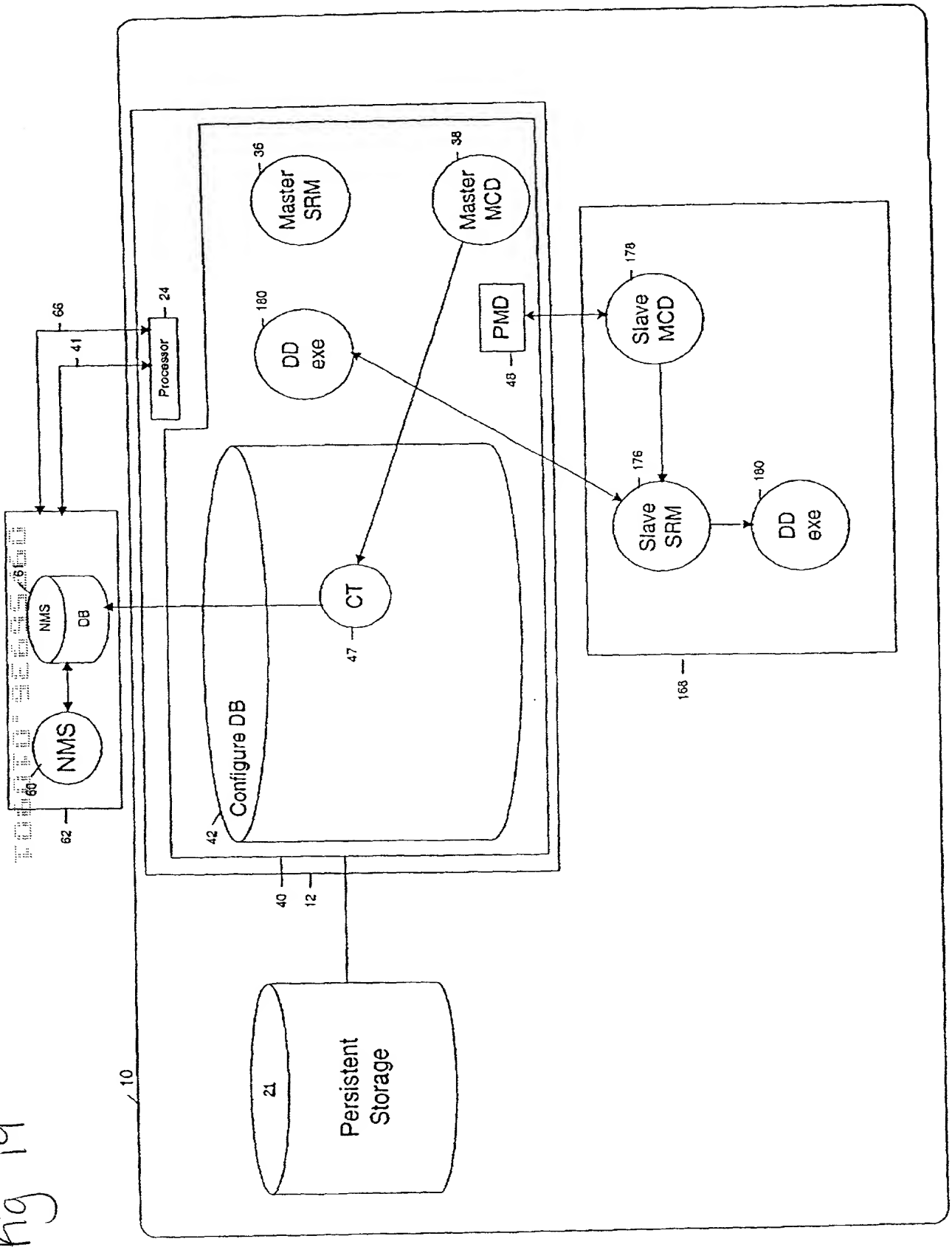

10
Persistent Storage
21
Master SRM
36
Master MCD
38
DD exe
180
PMD
48
Processor
24
66
41
Configure DB
42
CT
47
NMS
DB
60
NMS
62
40
12
Slave MCD
178
Slave SRM
176
DD exe
180
168

Fig 19

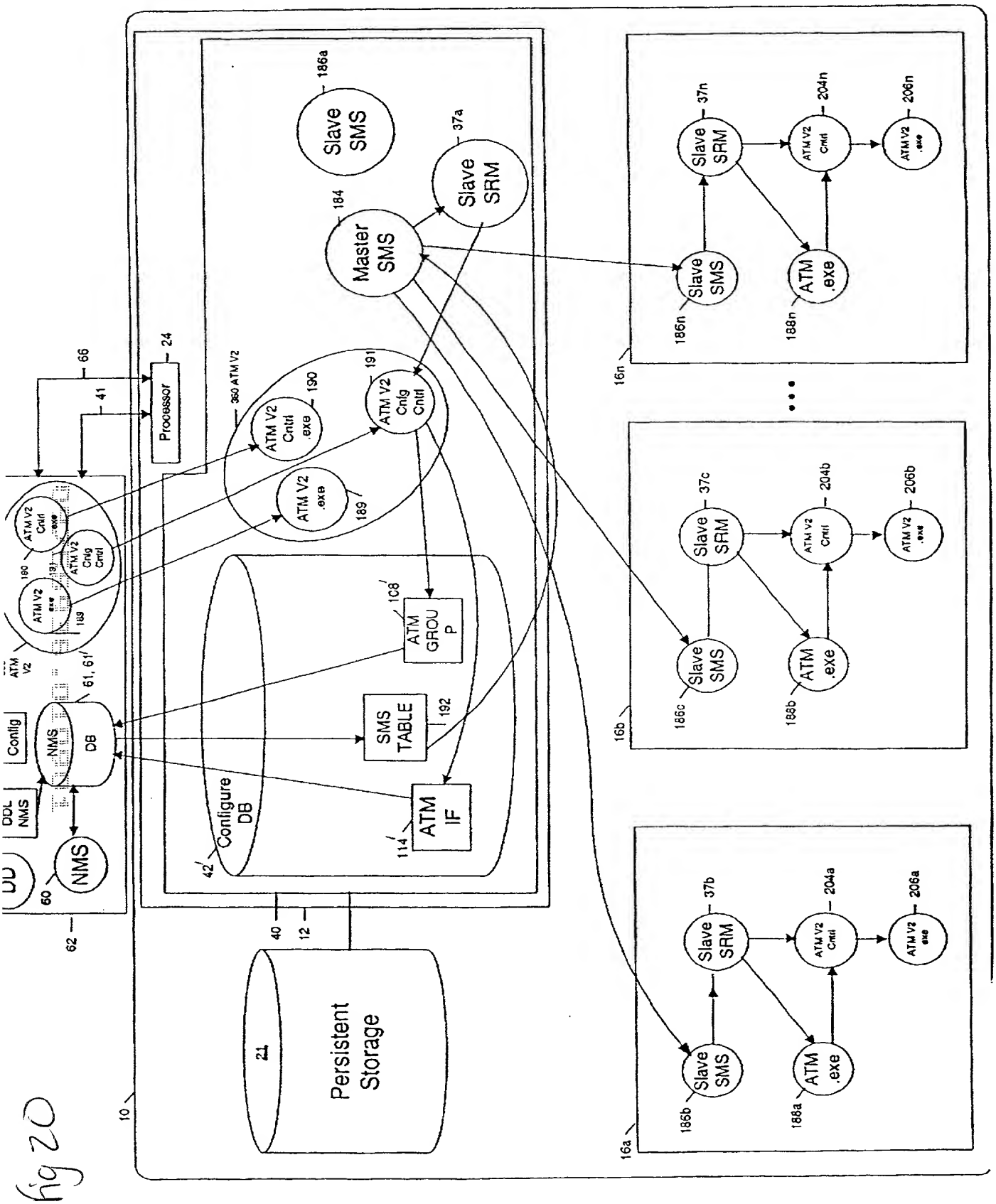

10
Persistent Storage
21
Configure DB
42'
ATM IF
114'
ATM GROUP
108'
SMS TABLE
192
DB
NMS
61, 61'
Config
DDL
NMS
60
62
Processor
24
66
41
40
12
ATM V2
360 ATM V2
ATM V2 Cntrl .exe
190
ATM V2 .exe
189
ATM V2 Cnfg Cntrl
191
Master SMS
184
Slave SMS
186a
Slave SRM
37a
16a
Slave SMS
186b
Slave SRM
37b
ATM .exe
188a
ATM V2 Cntrl
204a
ATM V2 .exe
206a
16b
Slave SMS
186c
Slave SRM
37c
ATM .exe
188b
ATM V2 Cntrl
204b
ATM V2 .exe
206b
16n
Slave SMS
186n
Slave SRM
37n
ATM .exe
188n
ATM V2 Cntrl
204n
ATM V2 .exe
206n

fig 20

FIG. 21

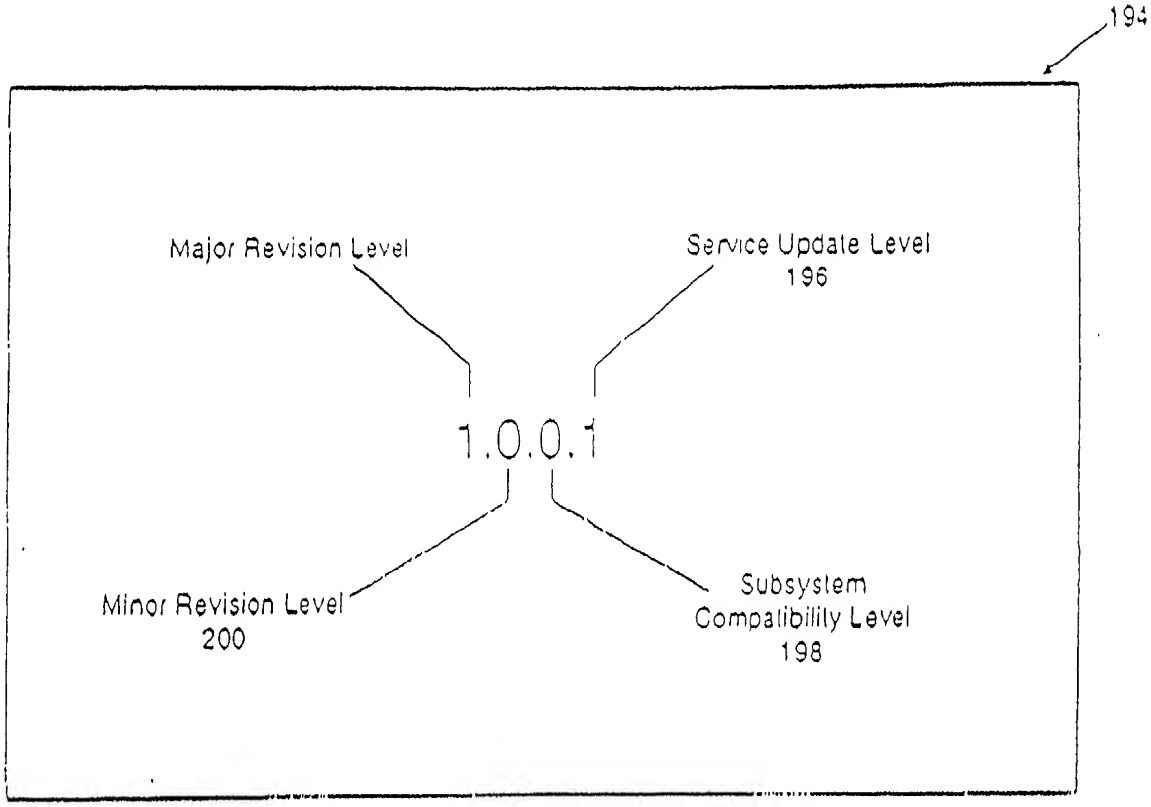
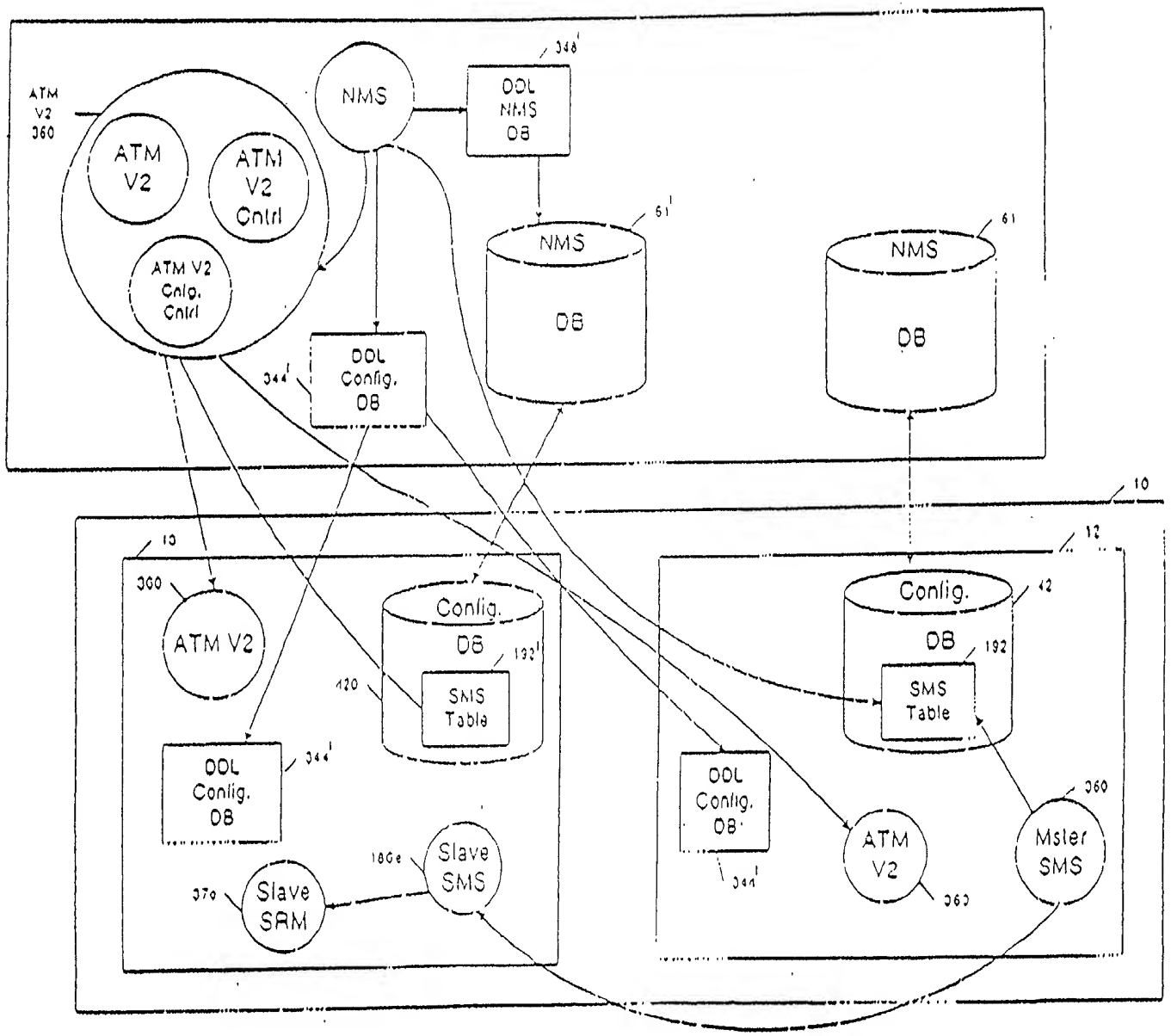

194
Major Revision Level
Service Update Level
196
1.0.0.1
Minor Revision Level
200
Subsystem
Compatibility Level
198

FIG. 22


ATM V2 360
ATM V2
ATM V2 Cntrl
ATM V2 Cnfg. Cntrl
NMS
348'
DDL NMS DB
61'
NMS
DB
61
NMS
DB
DDL Config. DB
344'
10
12
Config.
DB
192'
SMS Table
120
360
ATM V2
DDL Config. DB
344'
Slave SMS
180e
Slave SRM
370
Config.
DB
192
SMS Table
42
DDL Config. DB'
344'
ATM V2
360
Mster SMS
360

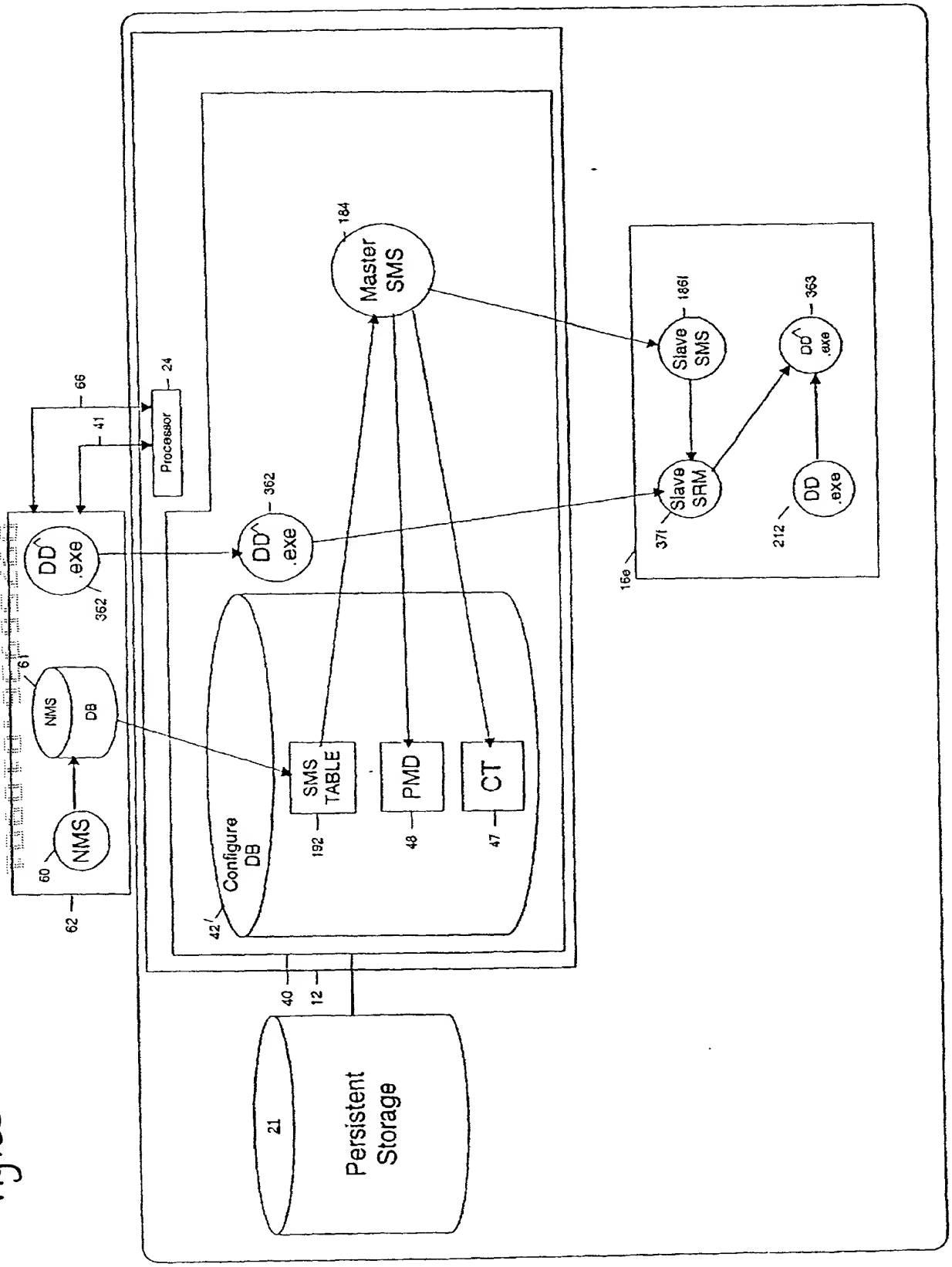

Master SMS
184
Slave SMS
186i
Slave SRM
371
DD .exe
362
DD .exe
363
DD .exe
212
16e
66
41
24
Processor
DD .exe
352
61
NMS
DB
NMS
60
62
Configure DB
42
SMS TABLE
192
PMD
48
CT
47
40
12
Persistent Storage
21

fig. 23

TOBOTO 96695260

FIG. 24

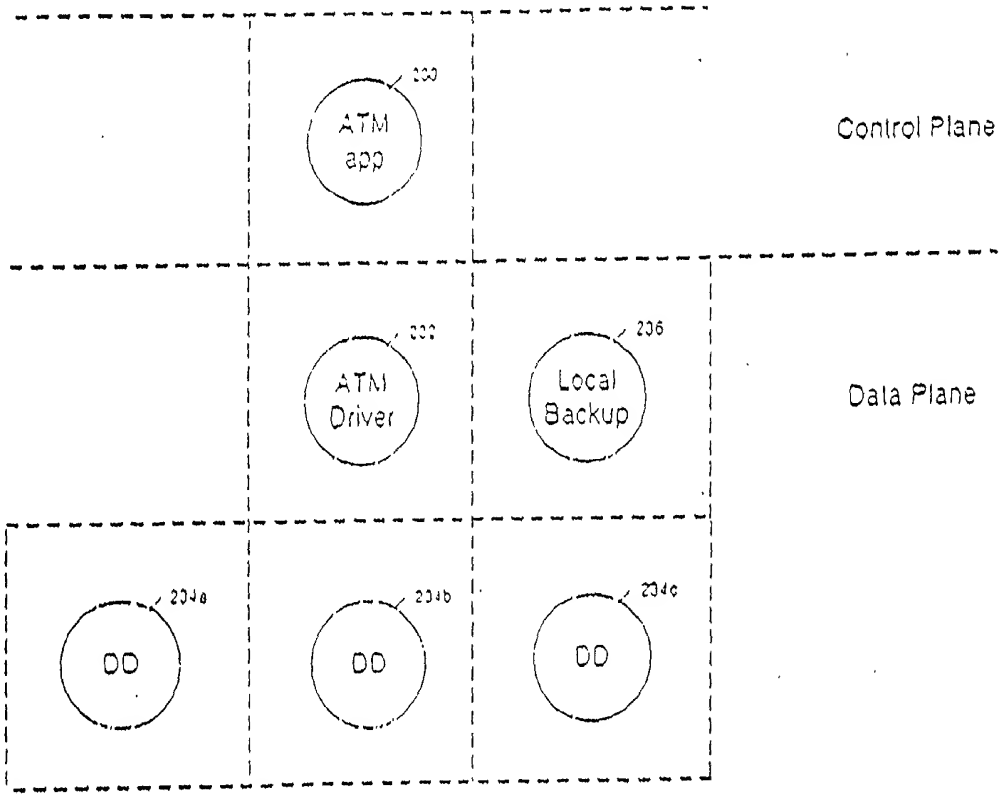
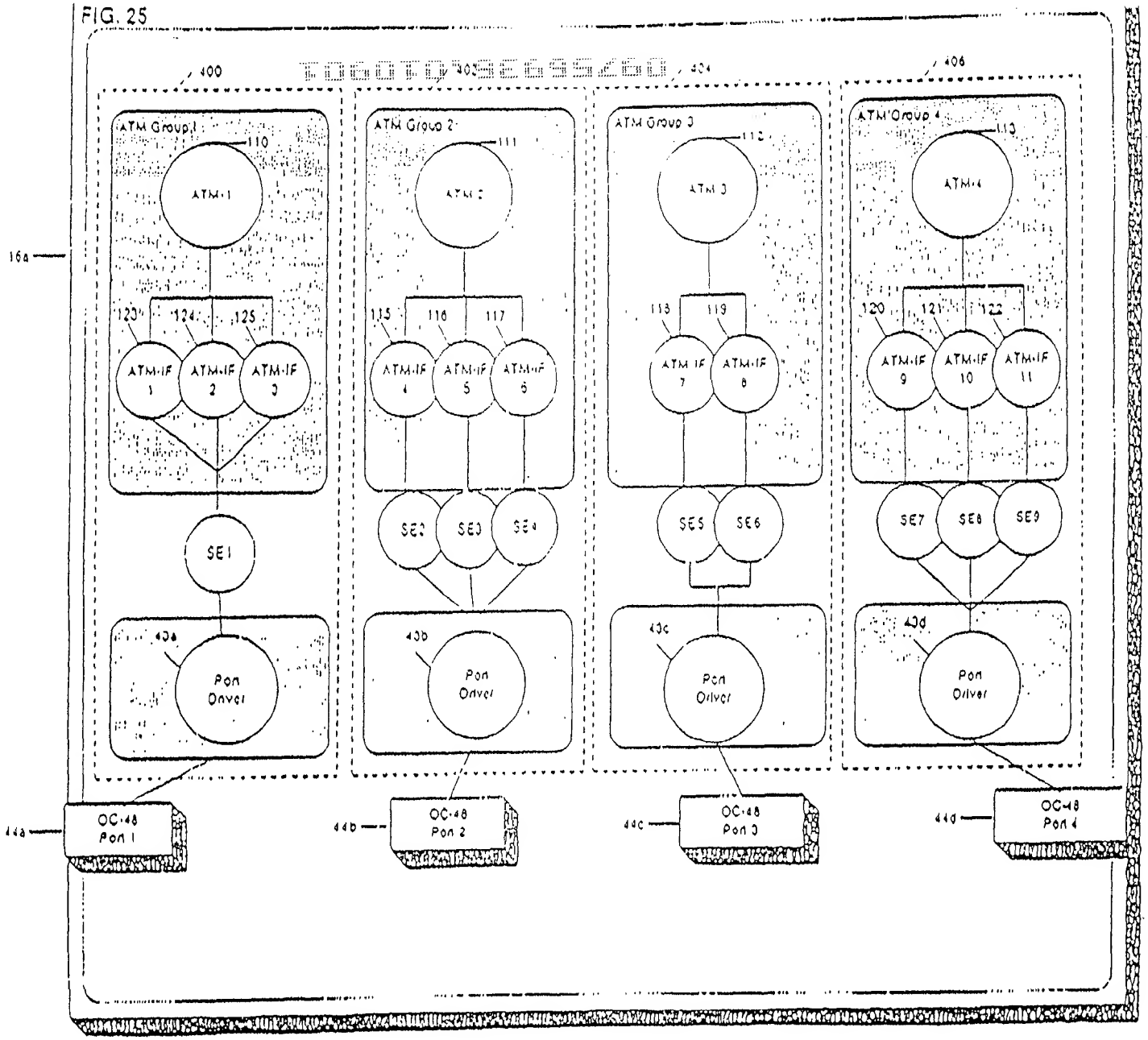


FIG. 25


400
402
404
406
ATM Group 1
ATM Group 2
ATM Group 3
ATM Group 4
110
111
112
113
ATM-1
ATM-2
ATM-3
ATM-4
120
121
122
123
124
125
115
116
117
118
119
ATM-IF 1
ATM-IF 2
ATM-IF 3
ATM-IF 4
ATM-IF 5
ATM-IF 6
ATM-IF 7
ATM-IF 8
ATM-IF 9
ATM-IF 10
ATM-IF 11
SE1
SE2
SE3
SE4
SE5
SE6
SE7
SE8
SE9
16a
43a
43b
43c
43d
Pon Driver
Pon Driver
Pon Driver
Pon Driver
44a
44b
44c
44d
OC-48 Pon 1
OC-48 Pon 2
OC-48 Pon 3
OC-48 Pon 4

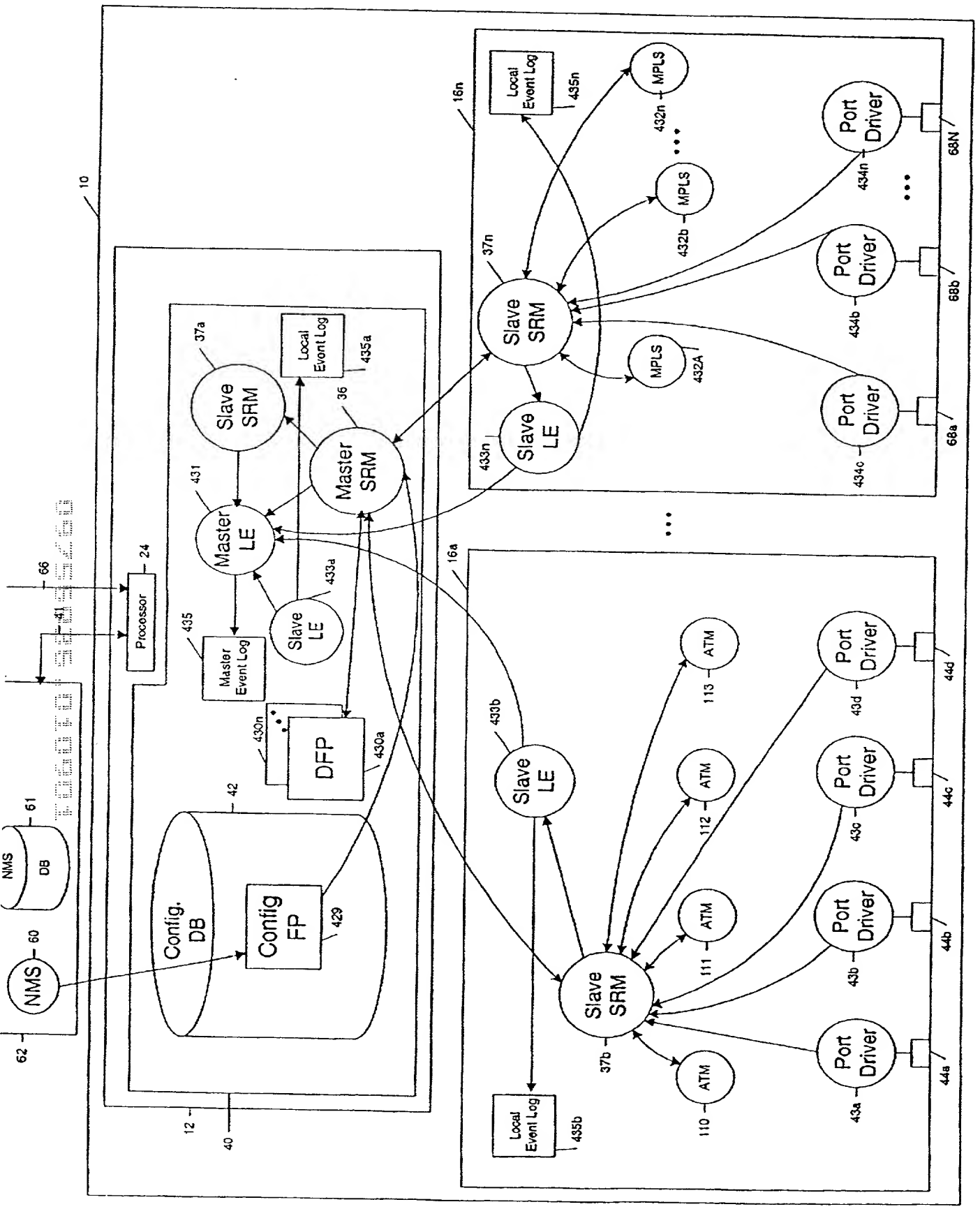

10
12
40
62
NMS
60
DB
61
Config. DB
42
Config FP
429
DFP
430n
430a
Processor
24
66
41
Master Event Log
435
Master LE
431
Master SRM
36
Slave SRM
37a
Slave LE
433a
Local Event Log
435a
Slave SRM
37n
Slave LE
433n
Local Event Log
435n
MPLS
432n
MPLS
432b
MPLS
432A
16n
Port Driver
434n
68N
Port Driver
434b
68b
Port Driver
434c
68a
16a
Slave LE
433b
Slave SRM
37b
Local Event Log
435b
ATM
113
ATM
112
ATM
111
ATM
110
Port Driver
43d
44d
Port Driver
43c
44c
Port Driver
43b
44b
Port Driver
43a
44a

fig 2a

FIG. 27

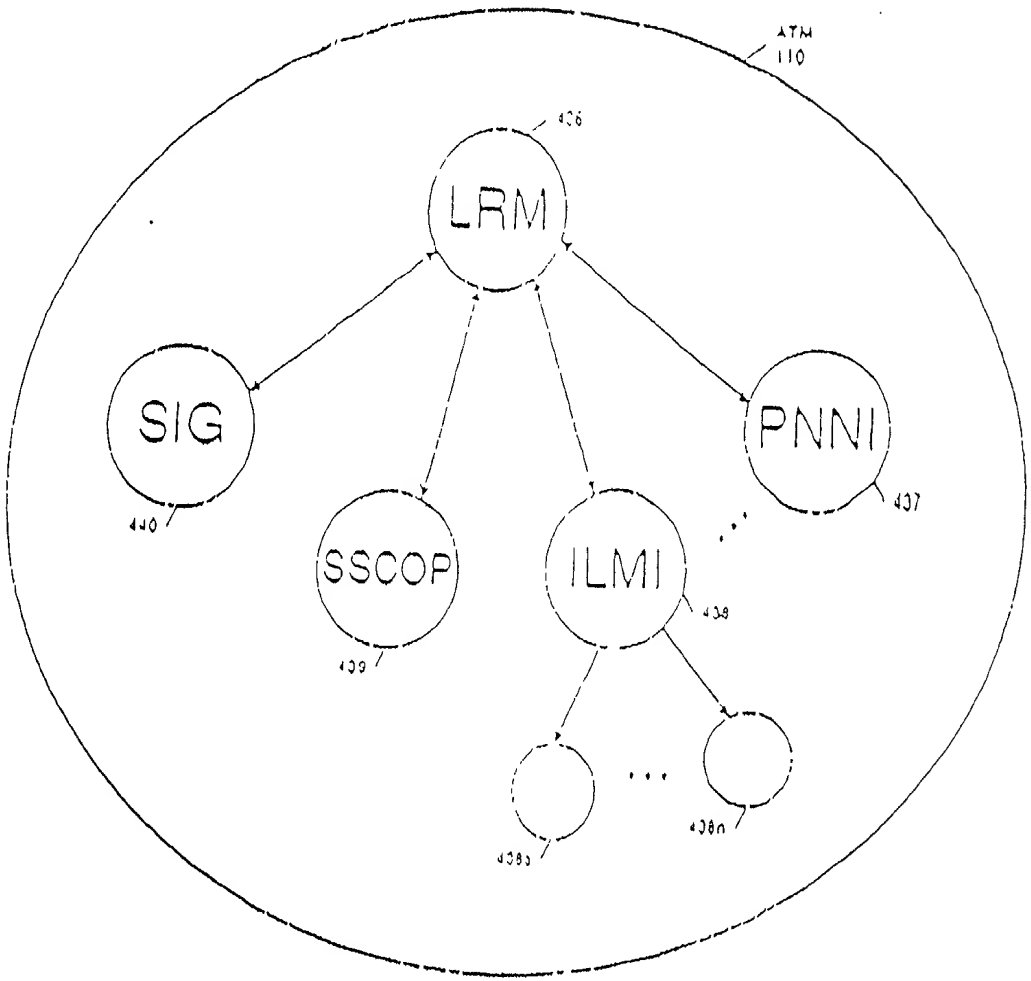


FIG. 28

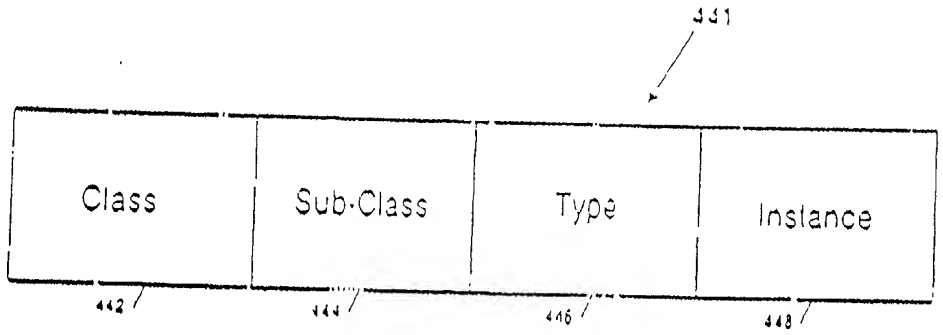
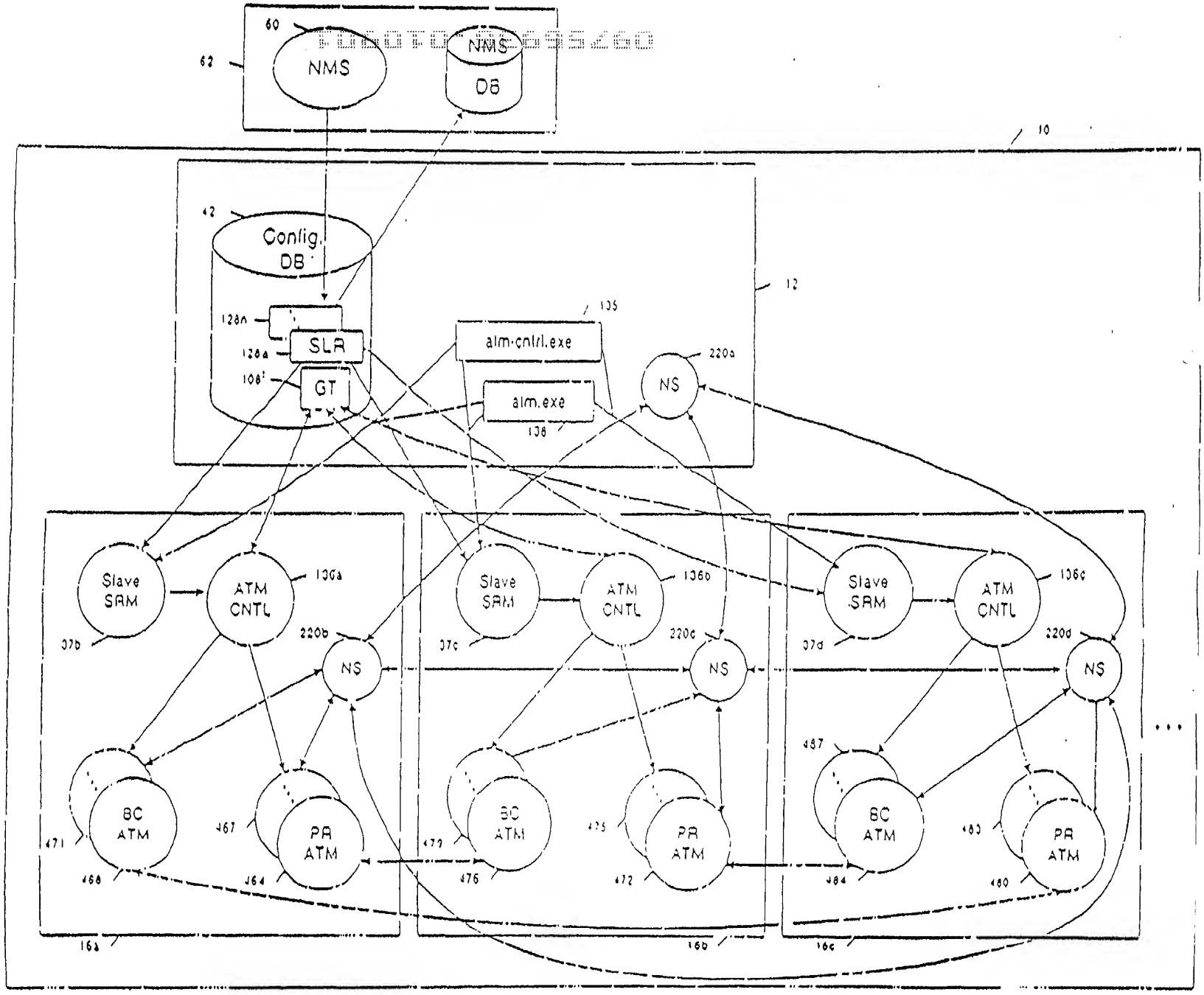


FIG. 29


60
NMS
62
NMS
DB
10
12
42
Config. DB
128a
SLR
128b
GT
alm.cntrl.exe
135
alm.exe
136
220a
NS
Slave SRM
ATM CNTL
136a
137b
220b
NS
BC ATM
PR ATM
471
467
468
464
Slave SRM
ATM CNTL
136b
137c
220c
NS
BC ATM
PR ATM
472
476
475
472
Slave SRM
ATM CNTL
136c
137d
220d
NS
BC ATM
PR ATM
487
484
483
480
16a
16b
16c

p Table 108

	Group # (447)	Primary Card LID	Backup Card LID (449)	...
450	1	30	31	
451	2	30	31	
452	3	30	31	
453	4	30	31	
454	5	31	32	
455	6	31	32	
456	7	31	32	
457	8	31	32	
458	9	32	30	
459	10	32	30	
460	11	32	30	
461	12	32	30	
	⋮	⋮	⋮	⋮

Fig 30

Exhibit 1005, page 50

fig 31a

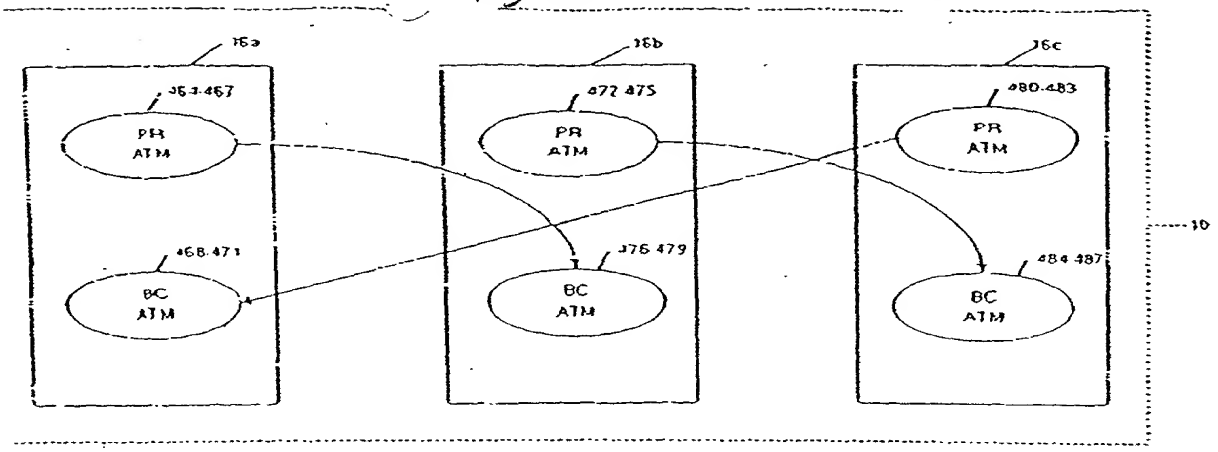


Fig. 31b

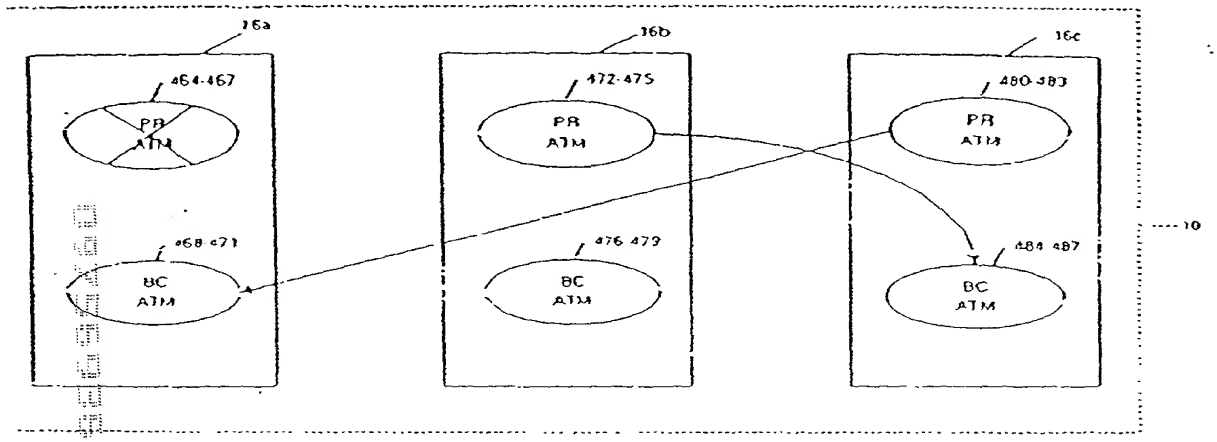
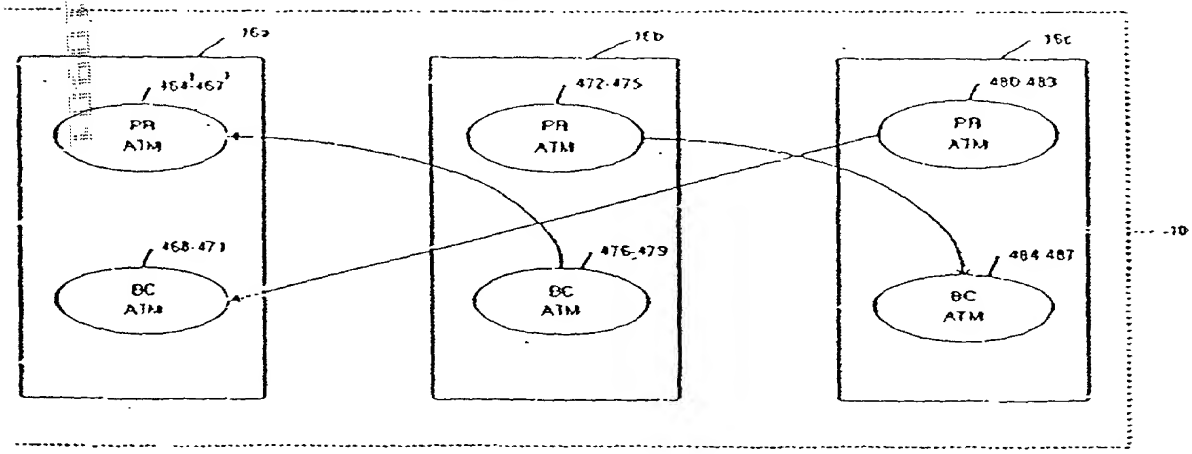


Fig. 31c



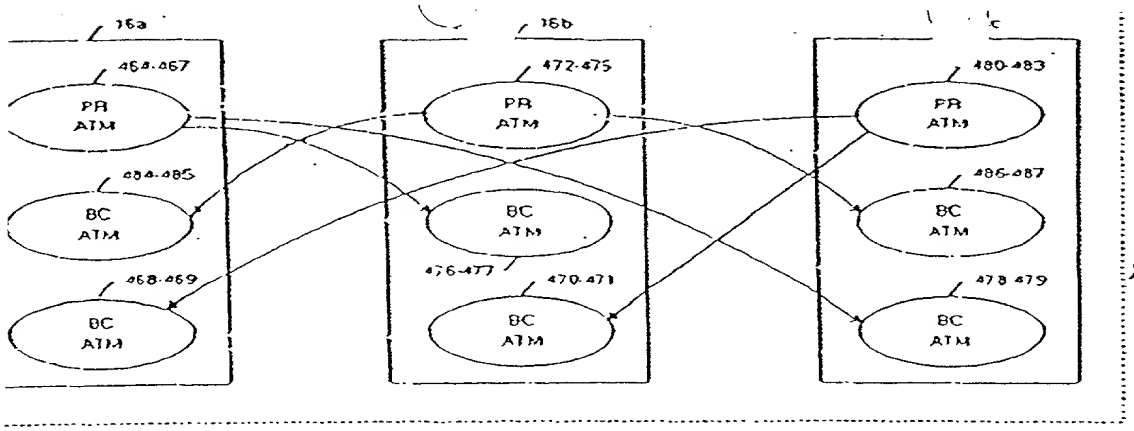


Fig. 37A

Fig. 32b

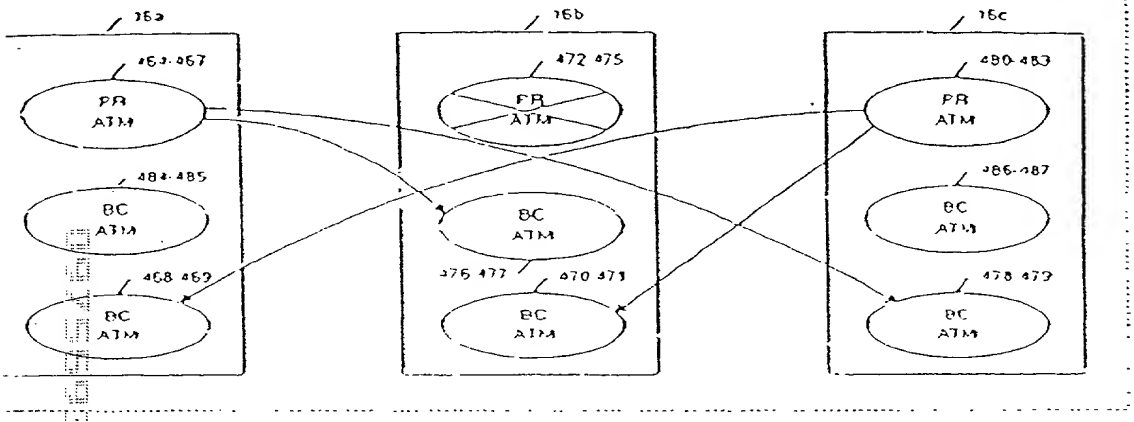


Fig. 32c

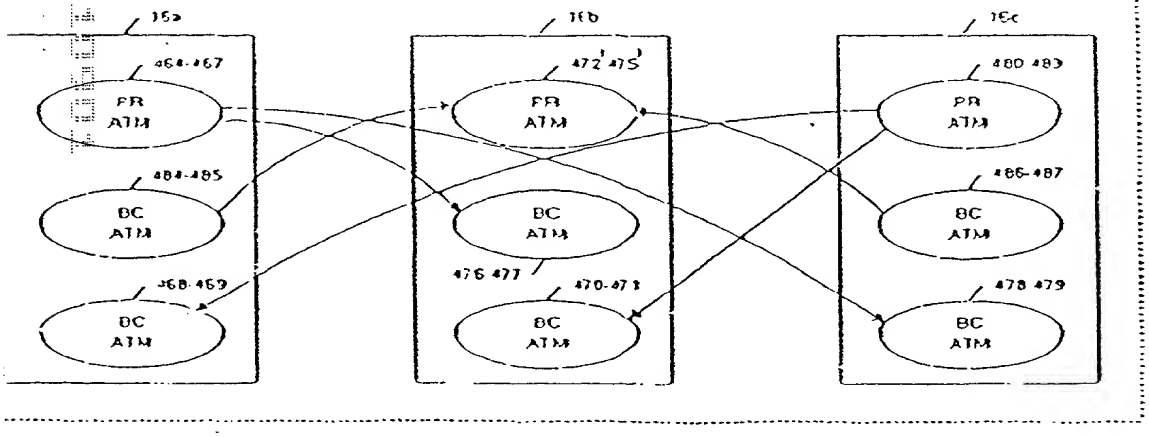


Fig. 33a

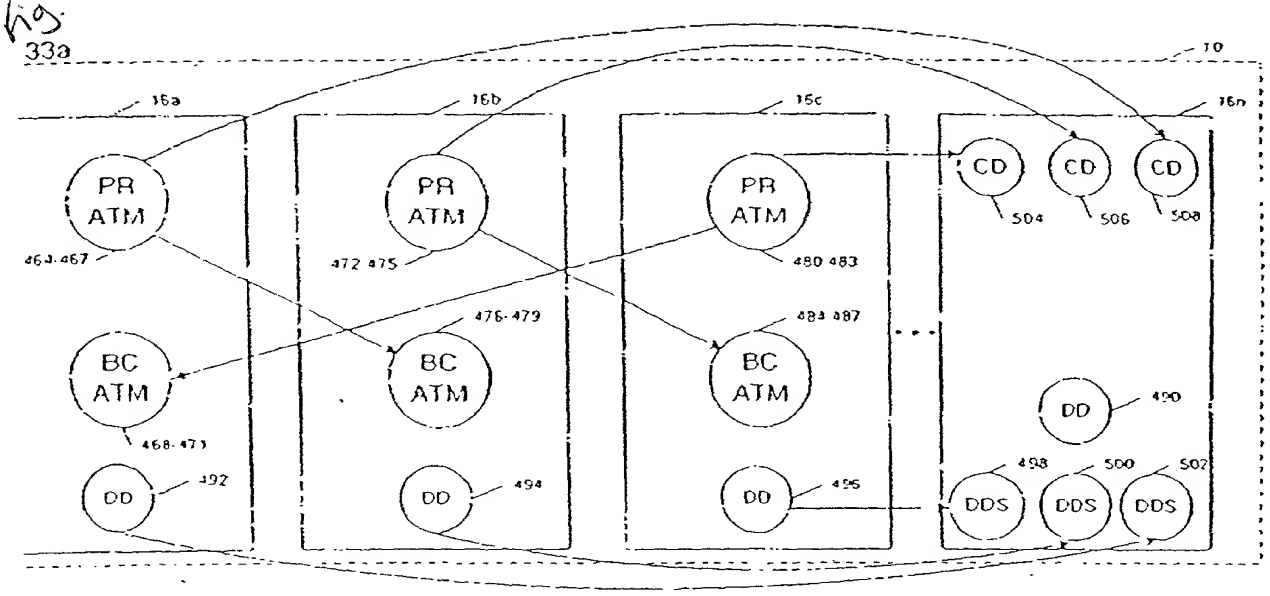


Fig. 33b

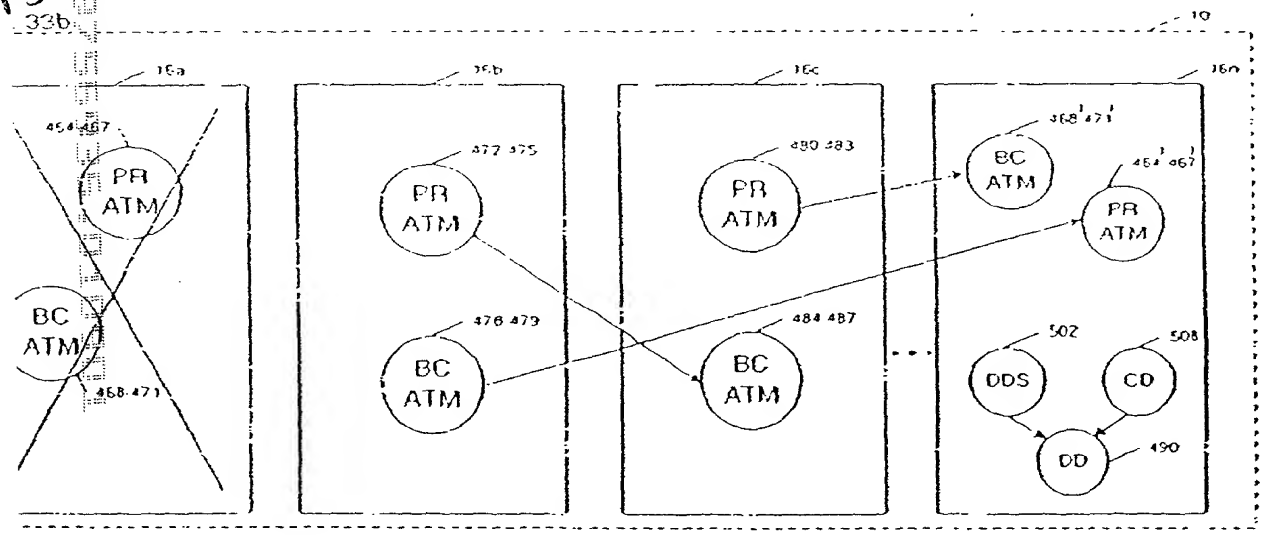


Fig 33c

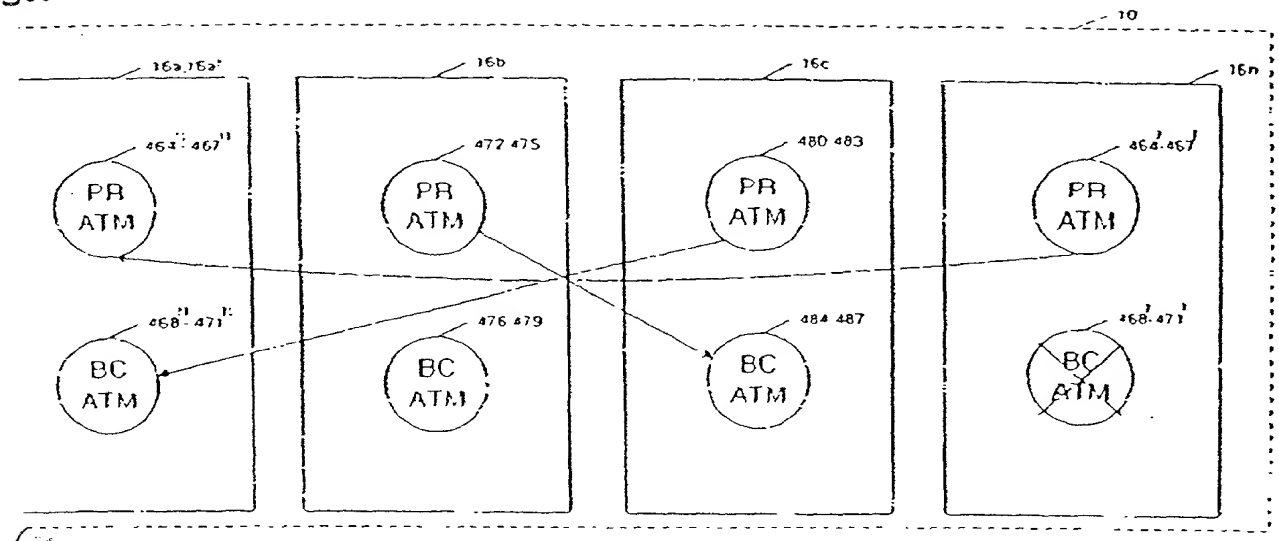
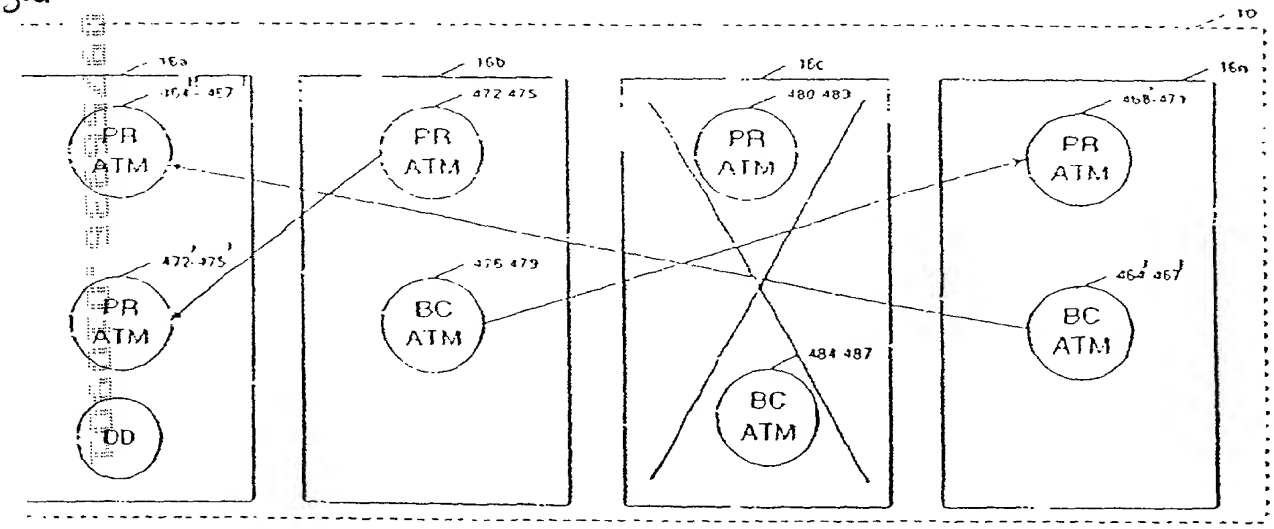
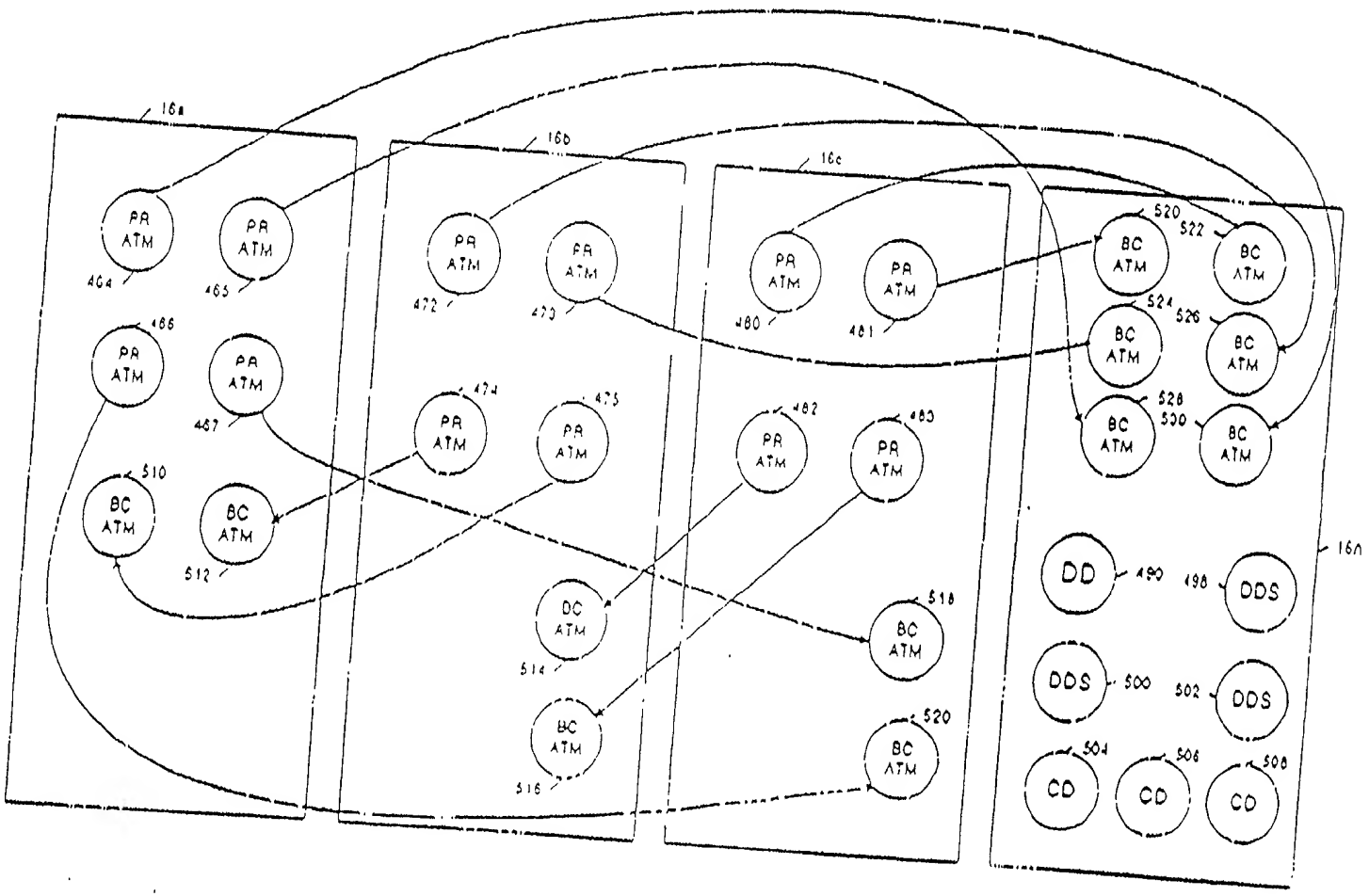


Fig 33d



TOSOTO" 9E695760

Fig. 34a



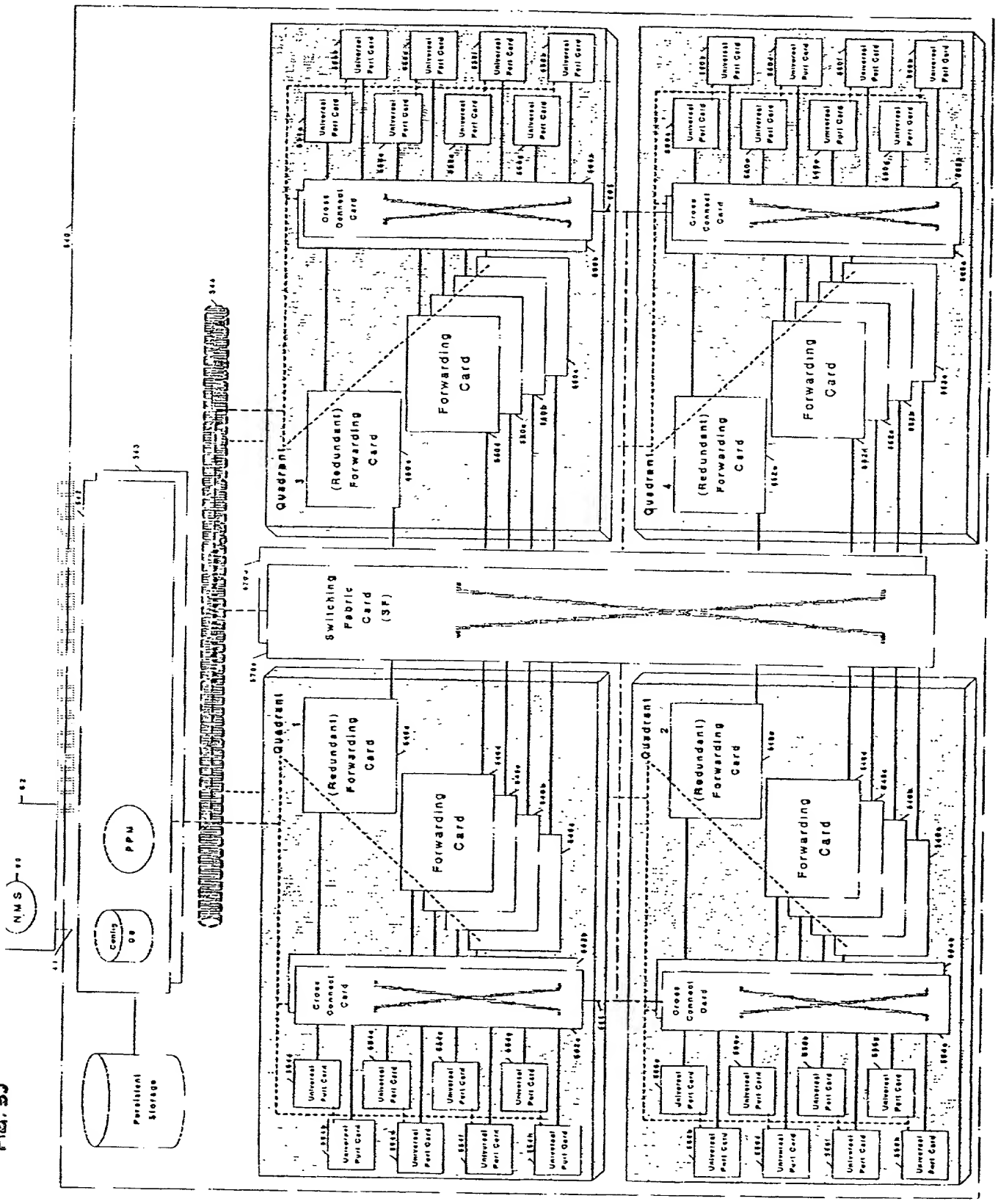
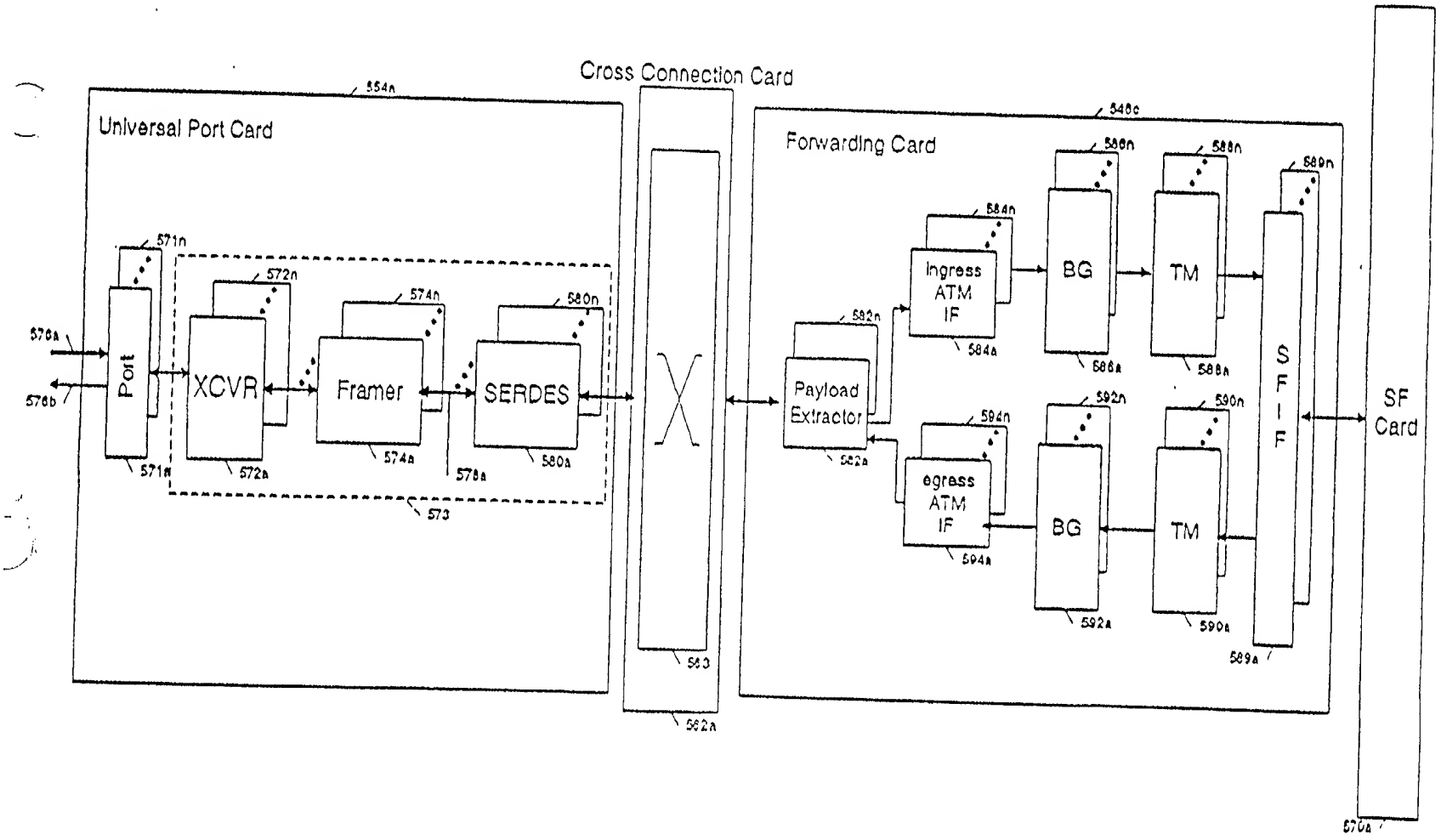

Quadrant 1
(Redundant) Forwarding Card
Forwarding Card
Quadrant 2
(Redundant) Forwarding Card
Forwarding Card
Quadrant 3
(Redundant) Forwarding Card
Forwarding Card
Quadrant 4
(Redundant) Forwarding Card
Forwarding Card
Switching Fabric Card (SF)
Cross Connect Card
Universal Port Card
NMS
PPN
Config DB
Persistent Storage

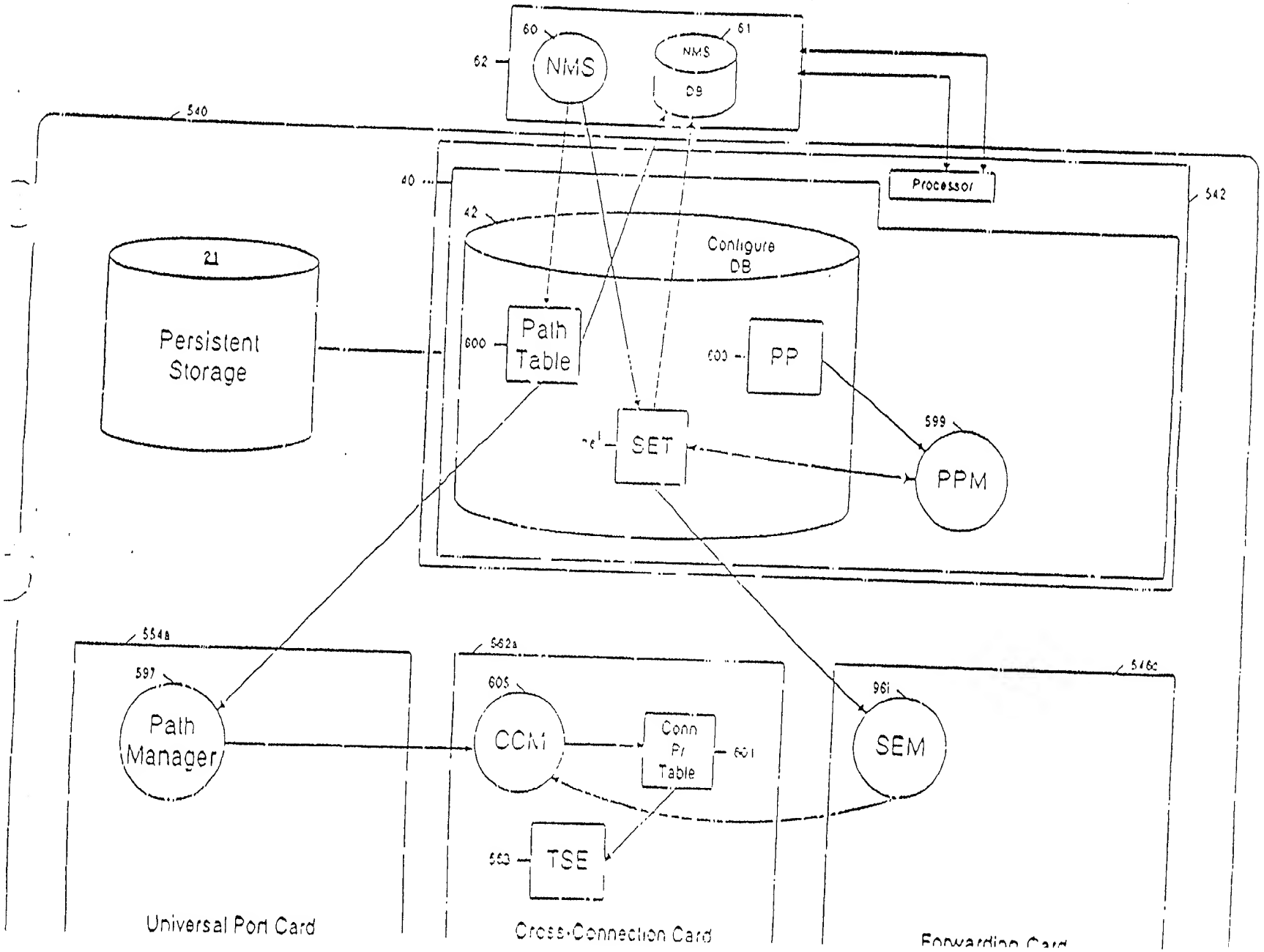
FIG. 3B

FIG. 36


Cross Connection Card
554n
Universal Port Card
571n
572n
574n
580n
576a
576b
Port
XCVR
Framer
SERDES
571a
572a
574a
578a
580a
573
563
562a
546c
Forwarding Card
584n
586n
588n
589n
582n
Ingress ATM IF
BG
TM
S F I F
Payload Extractor
584a
586a
588a
589a
582a
594n
592n
590n
egress ATM IF
BG
TM
594a
592a
590a
SF Card
570a

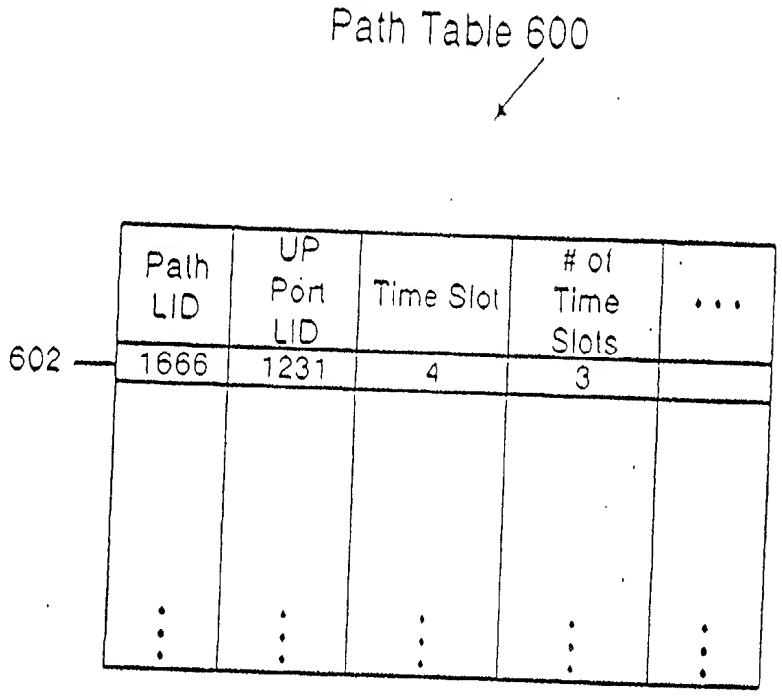
EP 0 660 240 A2

FIG. 37



TOSHIBA 9E695260

FIG. 38



FOUND: 96695260

FIG. 39

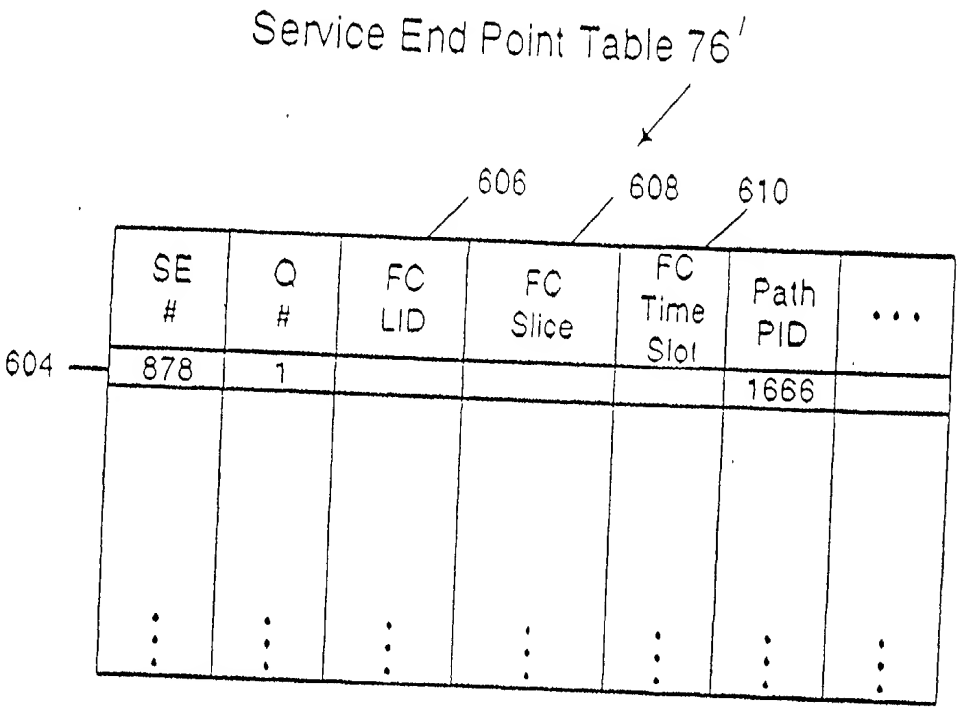


Fig. 40

Sent By: Equipe Communications; 781 795 2031; Jul-6-00 4:25PM; Page 2

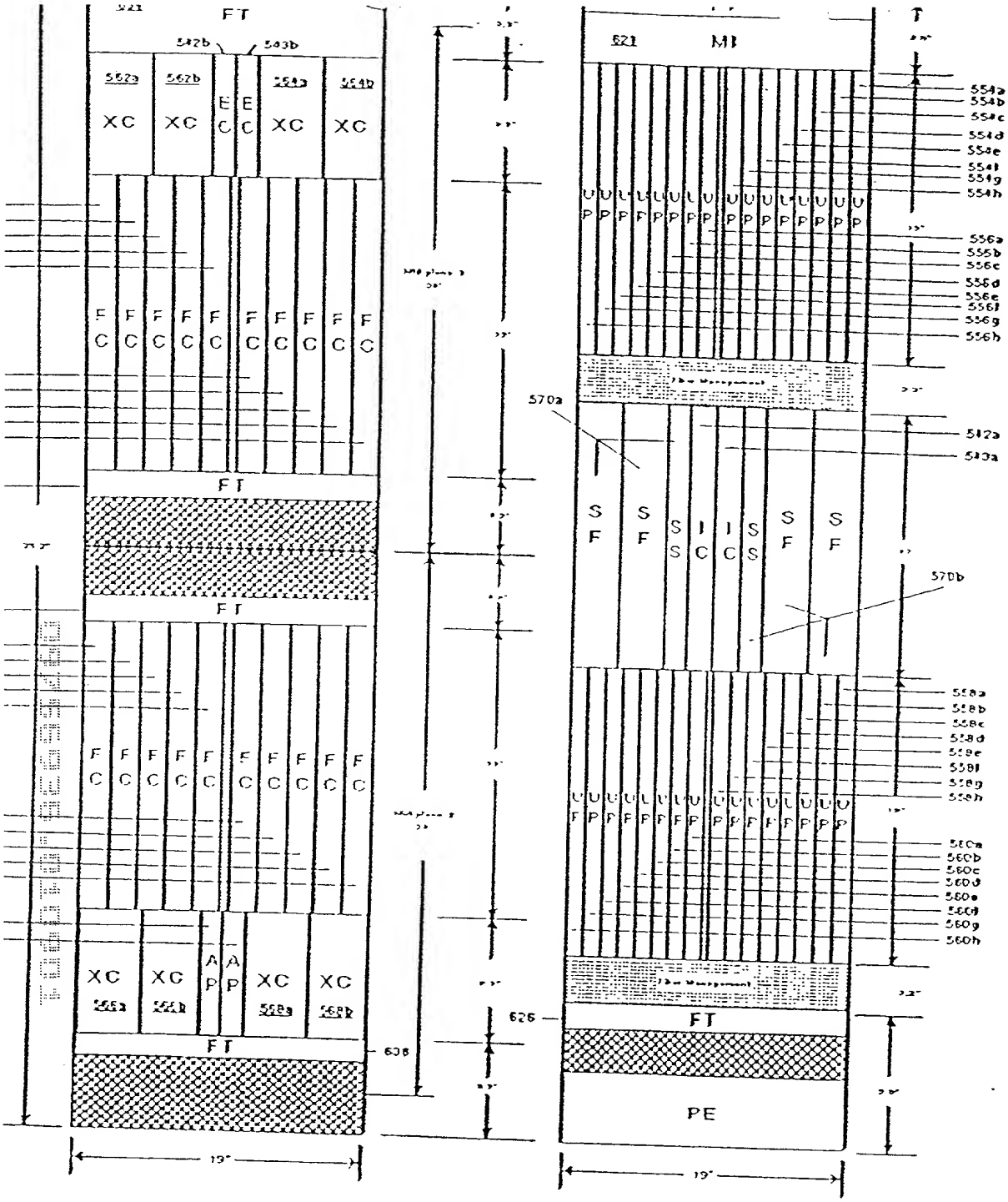
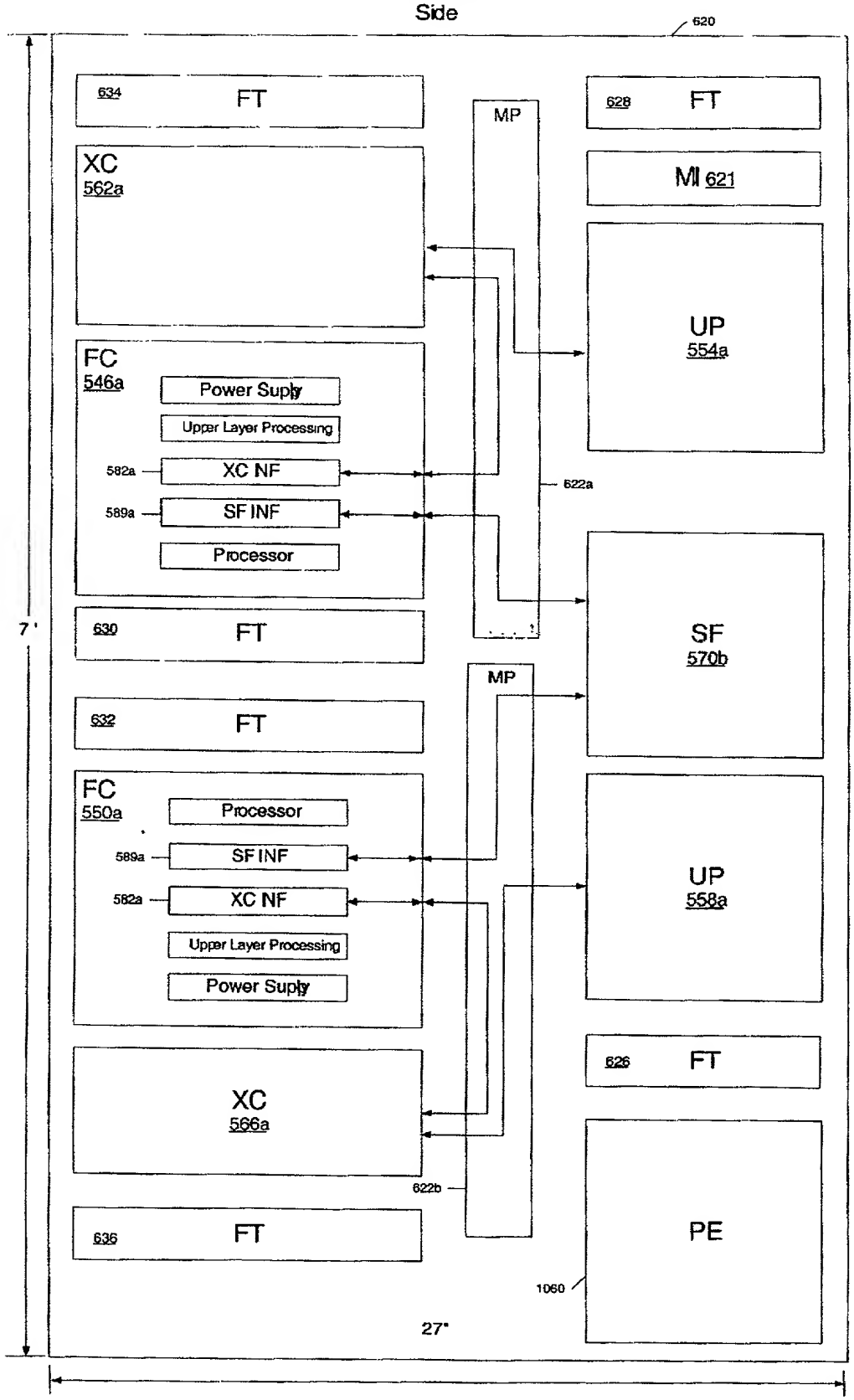


Fig. 41A

Fig. 41B

FIG. 41c
Side


620
634
FT
628
FT
MP
XC
562a
MI 621
UP
554a
FC
546a
Power Suply
Upper Layer Processing
582a
XC NF
589a
SF INF
Processor
622a
7'
630
FT
SF
570b
MP
632
FT
FC
550a
Processor
589a
SF INF
582a
XC NF
Upper Layer Processing
Power Suply
UP
558a
626
FT
XC
566a
622b
636
FT
PE
1060
27'

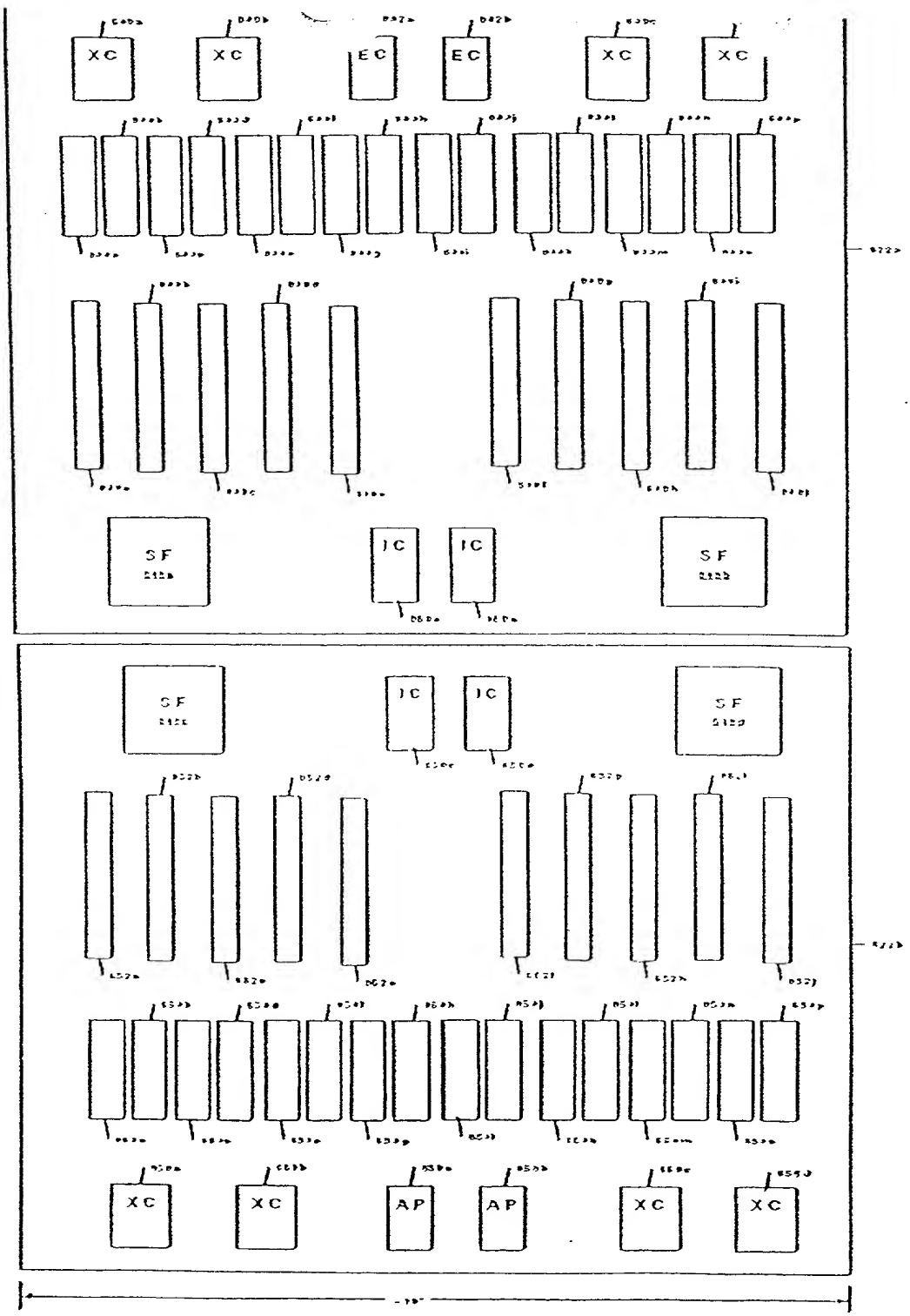
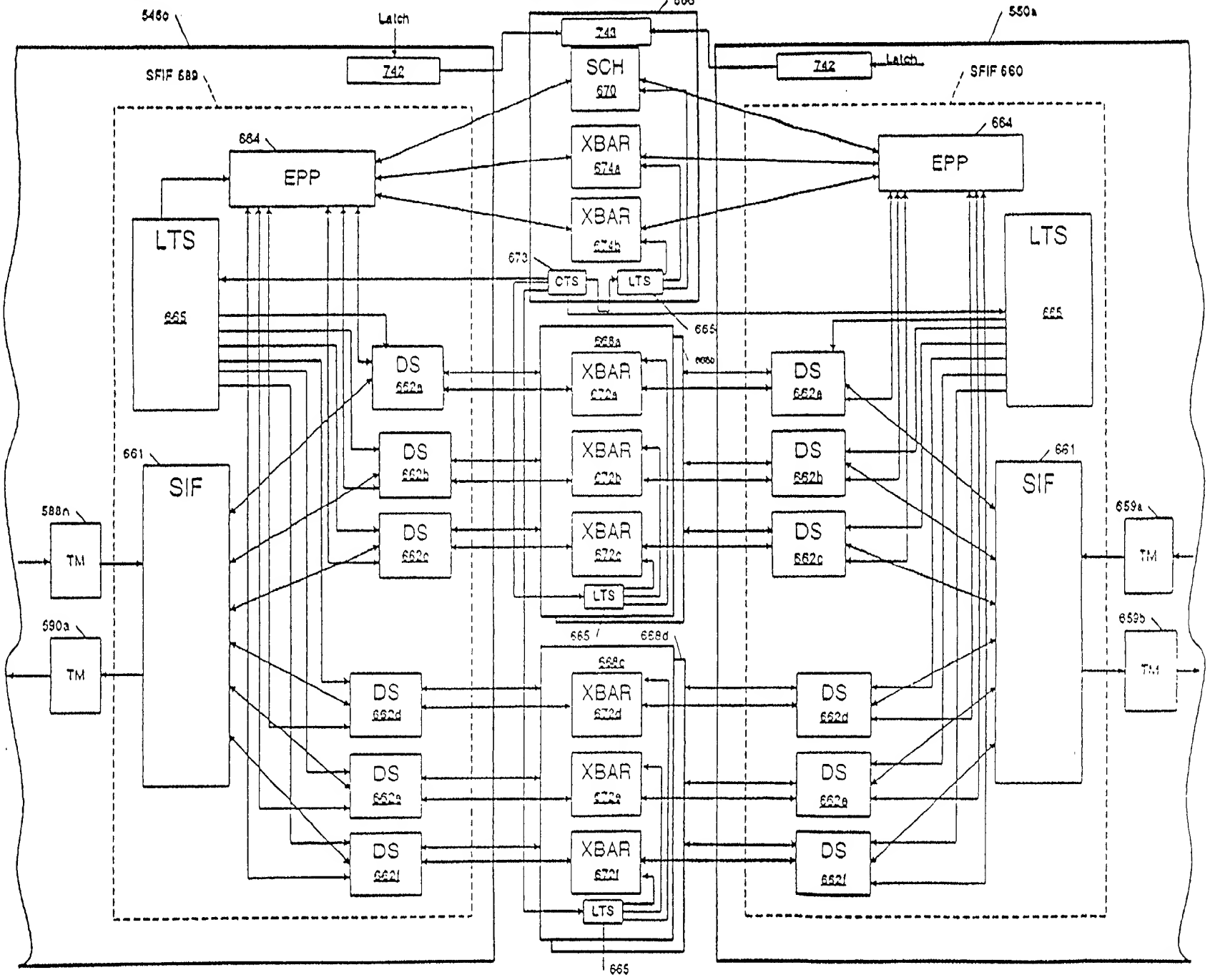


Fig. 42

FIG. 43


5460
Latch
666
743
SCH
670
742
SFIF 689
XBAR
674a
XBAR
674b
664
EPP
673
CTS
LTS
665
LTS
665
668a
668
DS
662a
XBAR
672a
661
SIF
DS
662b
XBAR
672b
588n
TM
DS
662c
XBAR
672c
LTS
590a
TM
665
668d
668c
DS
662d
XBAR
672d
DS
662e
XBAR
672e
DS
662f
XBAR
672f
LTS
665
550a
742
Latch
SFIF 660
664
EPP
LTS
665
661
SIF
659a
TM
659b
TM

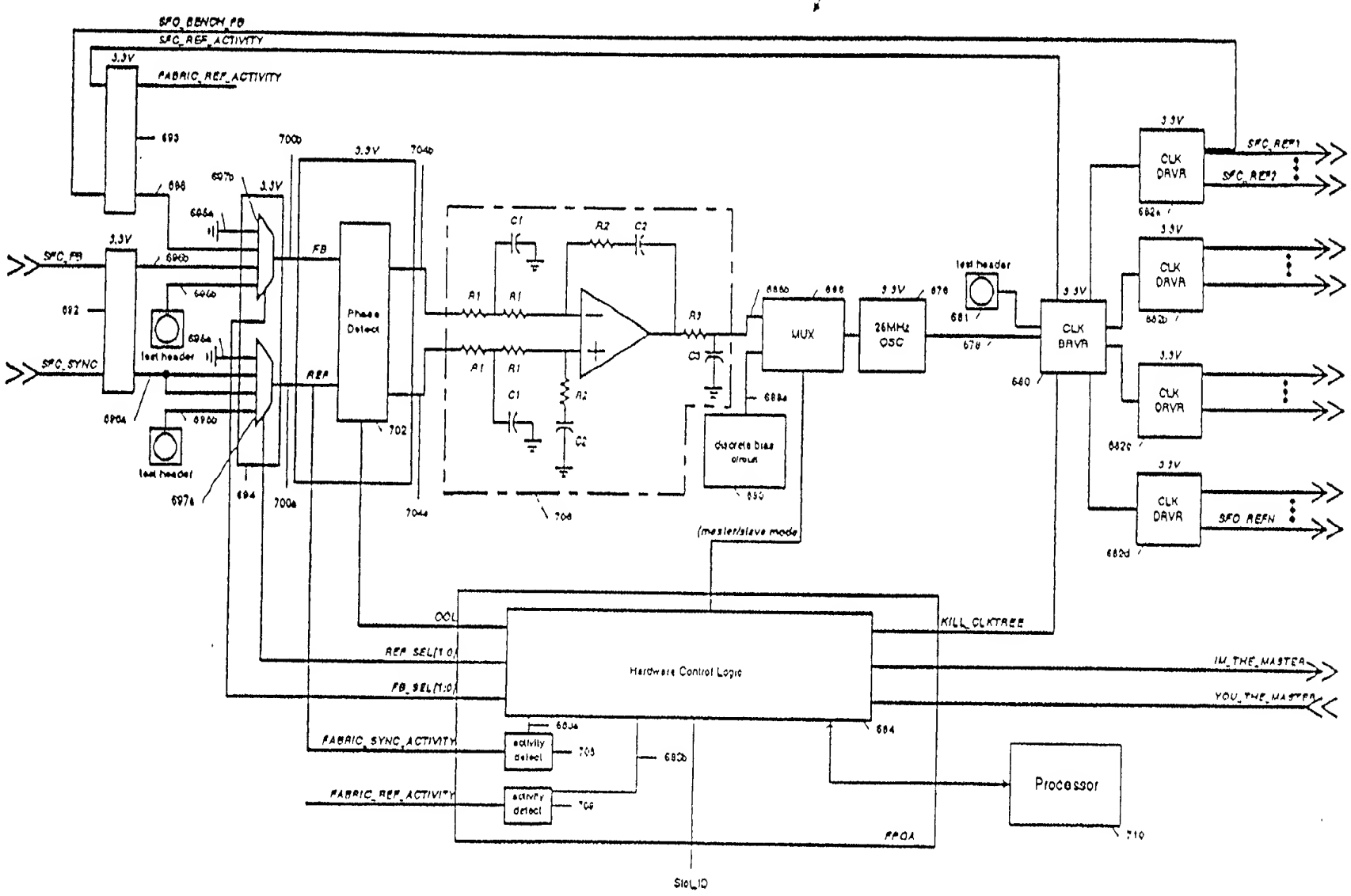
Received Sep 27 2000

FIG. 44

ent By: Equipe Communications; 781 795 2031; Jul-6-00 4:26PM; Page 4

Jul-6-00 4:26PM; 781 795 2031; nt By: Equipe Communications;

FIG. 45



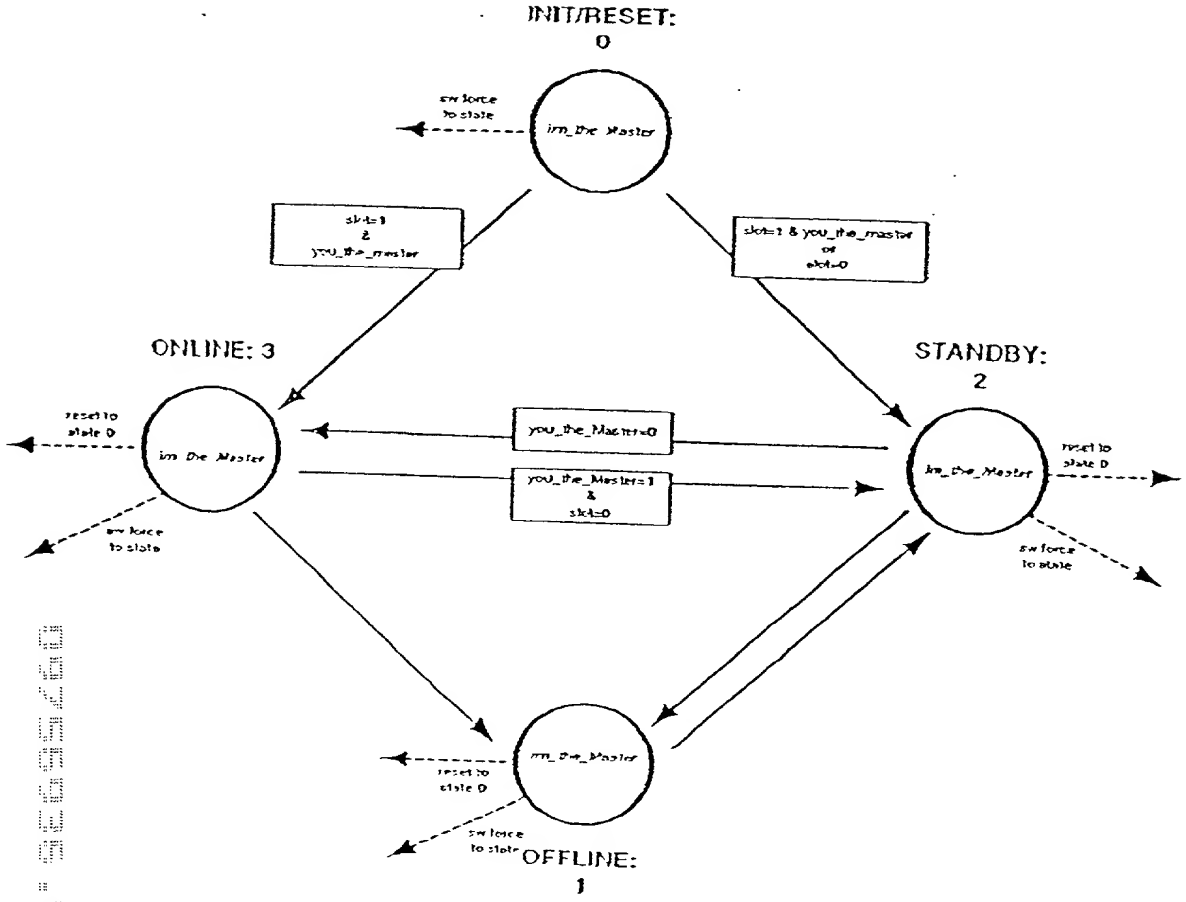

INIT/RESET:
0
sw force
to state
im_the_Master
slot=1
&
you_the_master
slot=1 & you_the_master
or
slot=0
ONLINE: 3
STANDBY:
2
reset to
state 0
im_the_Master
you_the_Master=0
you_the_Master=1
&
slot=0
im_the_Master
reset to
state 0
sw force
to state
sw force
to state
im_the_Master
reset to
state 0
sw force
to state
OFFLINE:
1

FIG. 46

Sent By: Equipe Communications; 781 795 2031; Jul-6-00 4:26PM; Page 7

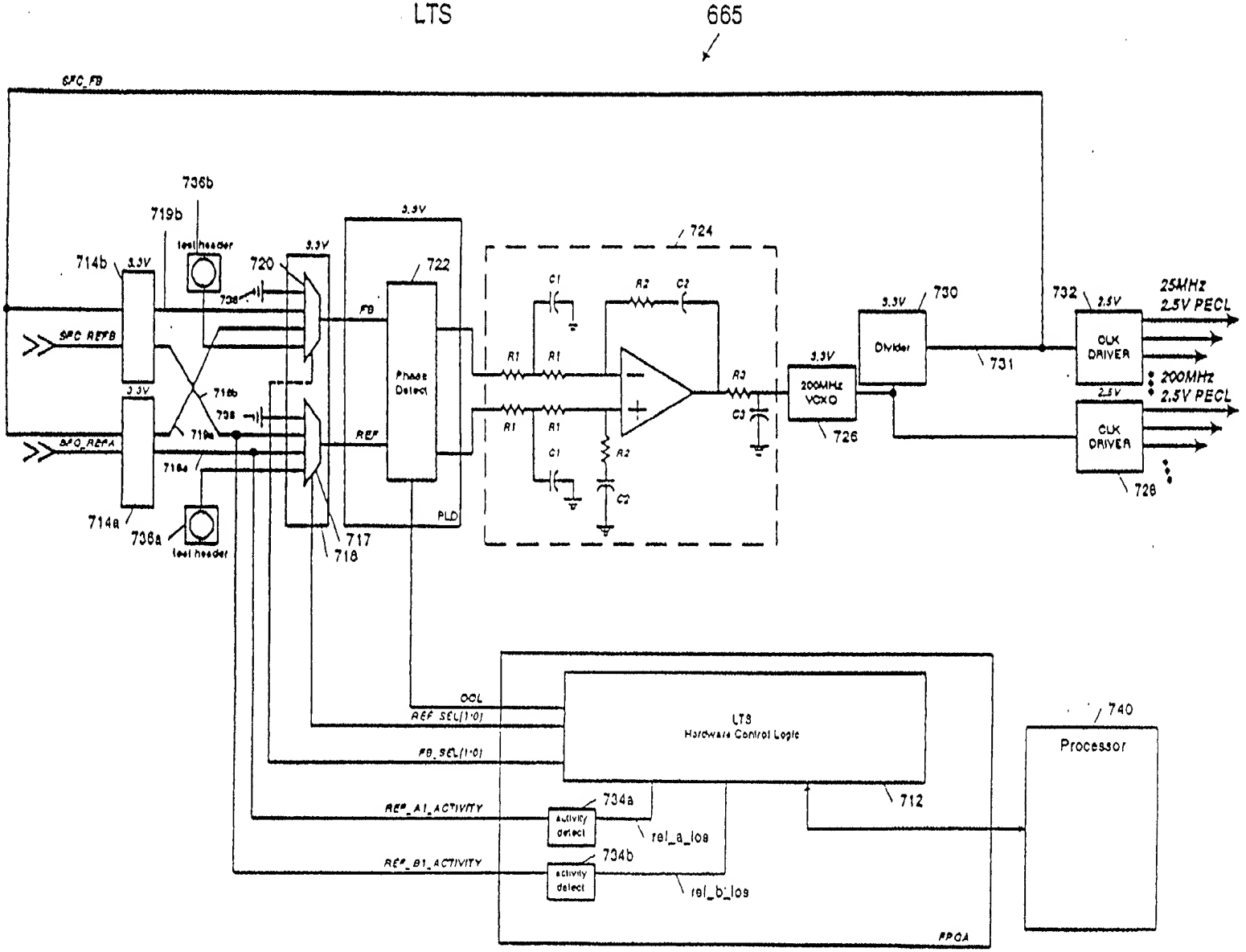


FIG. 47

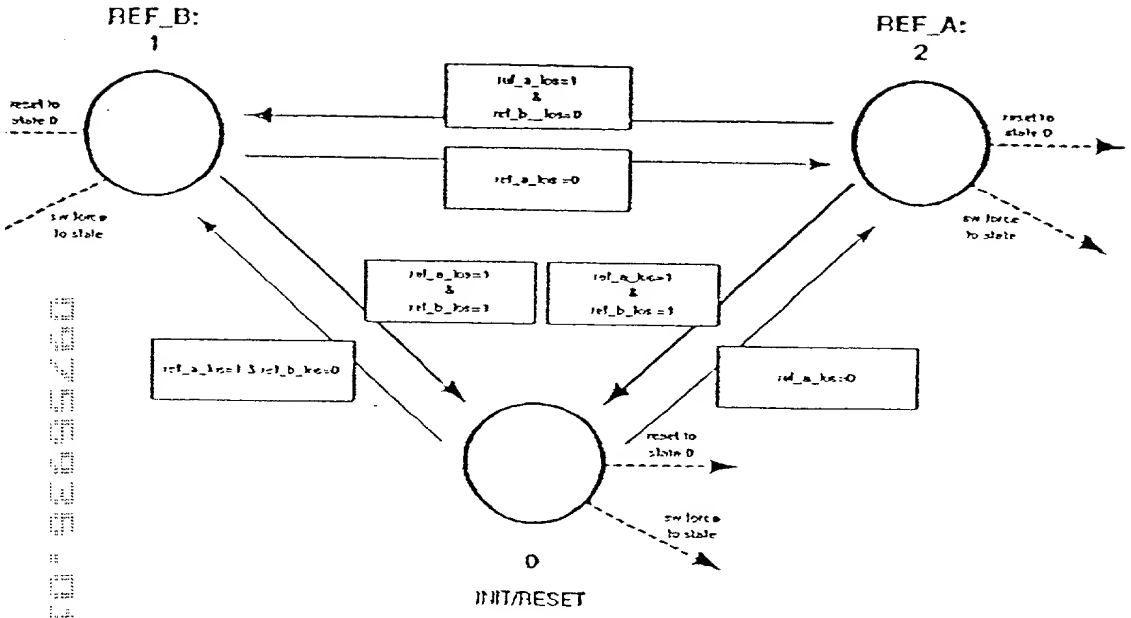

REF_B:
1
REF_A:
2
reset to
state 0
sw force
to state
ref_a_bs=1
&
ref_b_bs=0
ref_a_bs =0
reset to
state 0
sw force
to state
ref_a_bs=1
&
ref_b_bs=1
ref_a_bs=1
&
ref_b_bs =1
ref_a_bs=1 & ref_b_bs=0
ref_a_bs=0
reset to
state 0
sw force
to state
0
INIT/RESET

FIG. 48

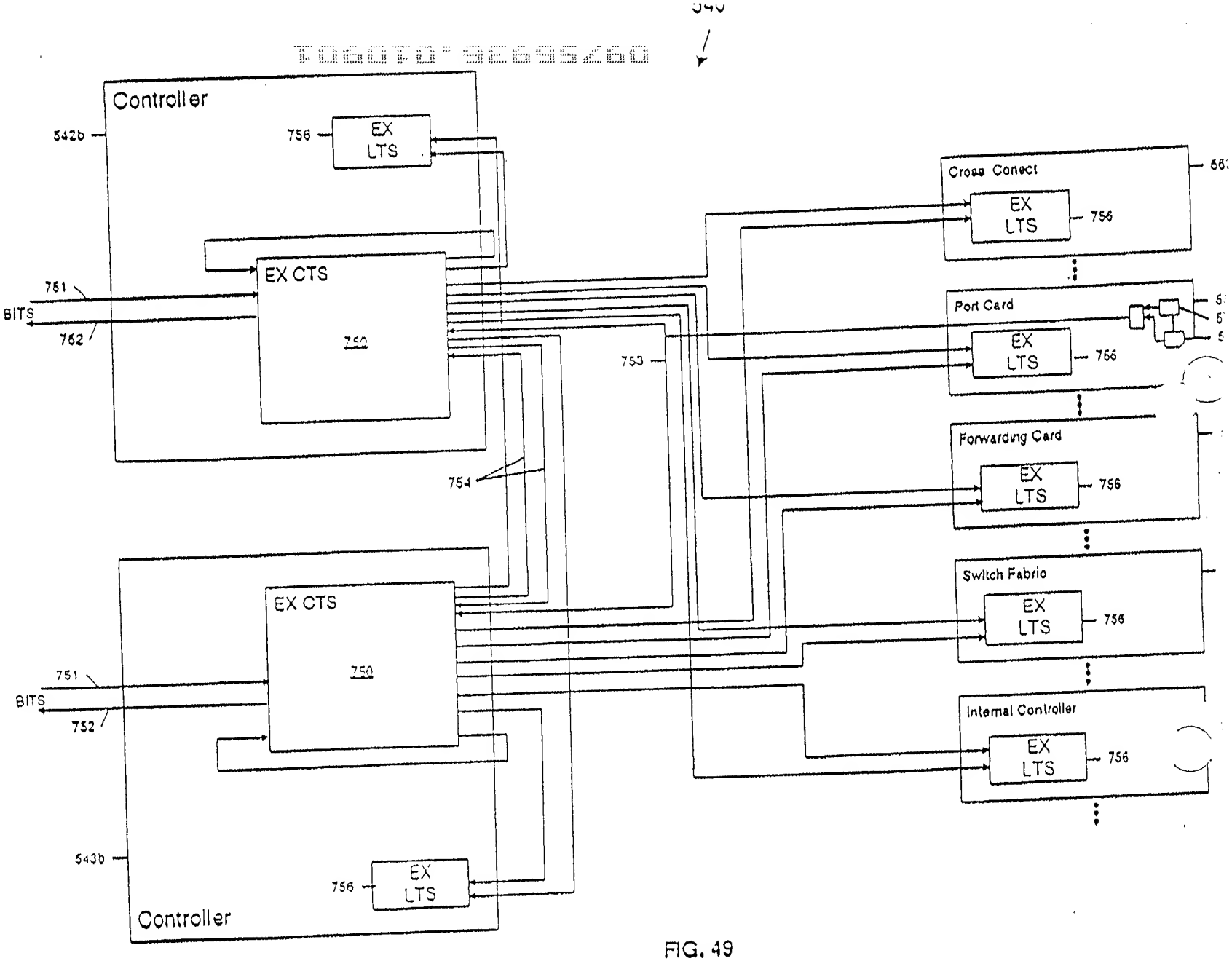

540
Controller
542b
756
EX LTS
EX CTS
750
751
BITS
752
753
754
Cross Conect
Port Card
Forwarding Card
Switch Fabric
Internal Controller
543b
Controller

FIG. 49

T0600T0 "26955760

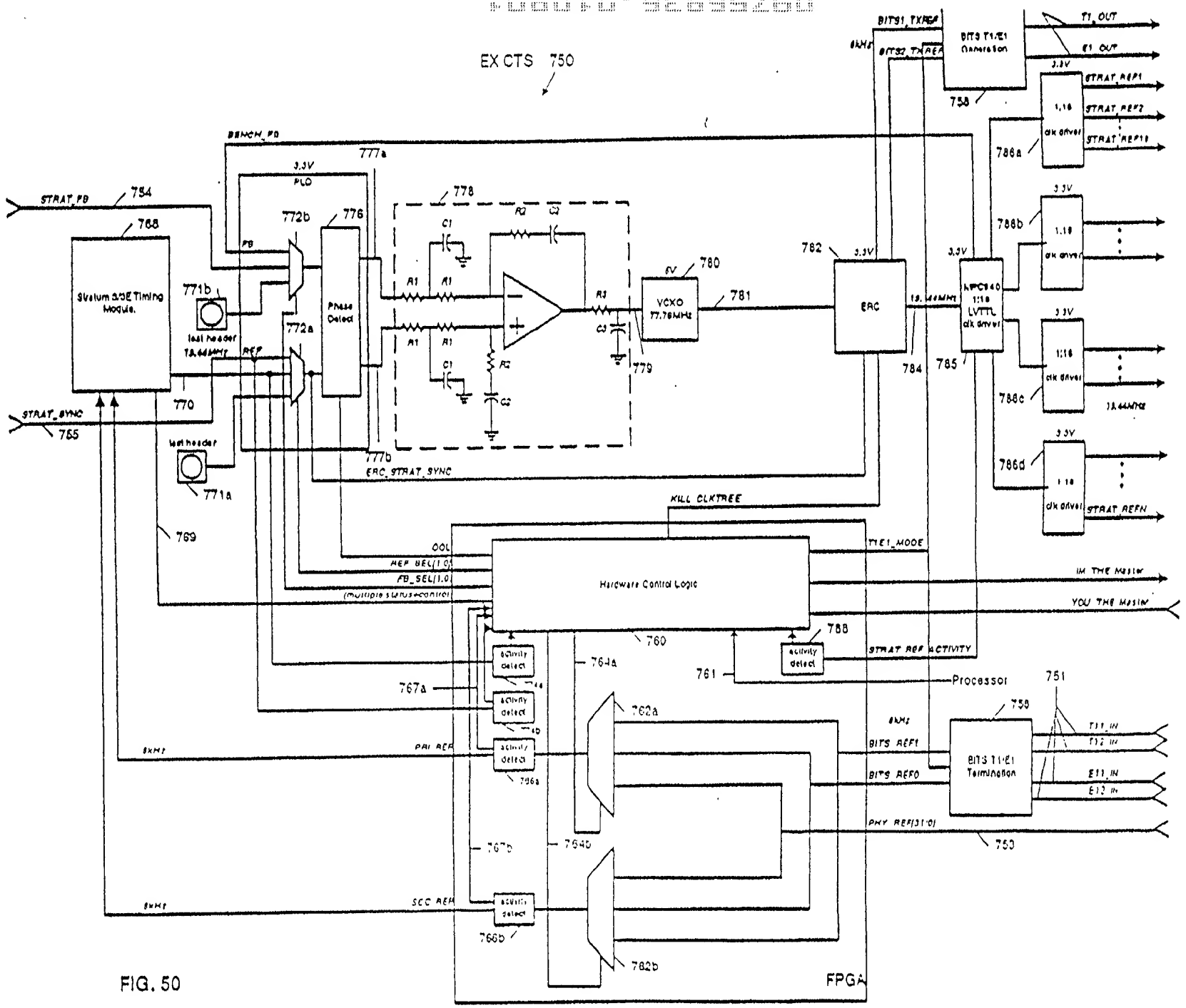


FIG. 50

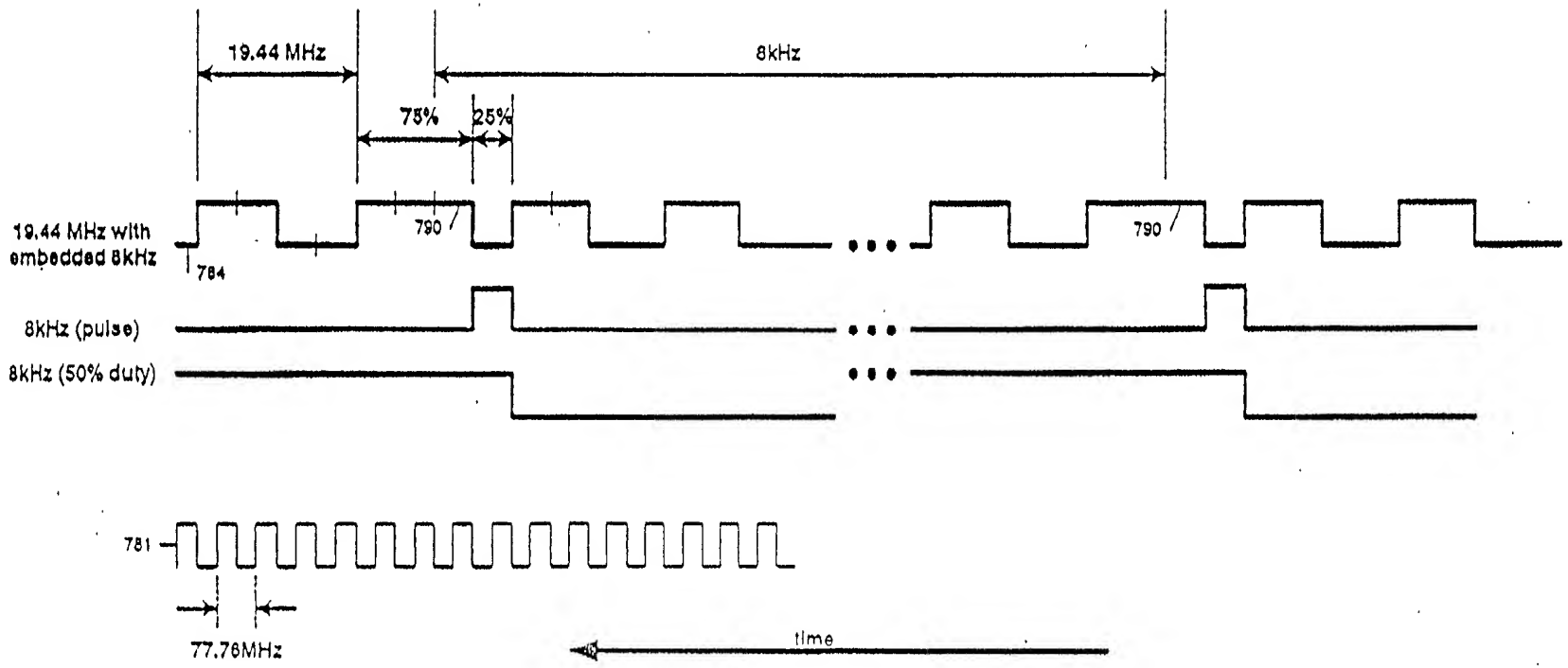

19.44 MHz
8kHz
75%
25%
19.44 MHz with
embedded 8kHz
784
790
790
8kHz (pulse)
8kHz (50% duty)
781
77.76MHz
time

FIG. 51

T0660T0 9E65792.60

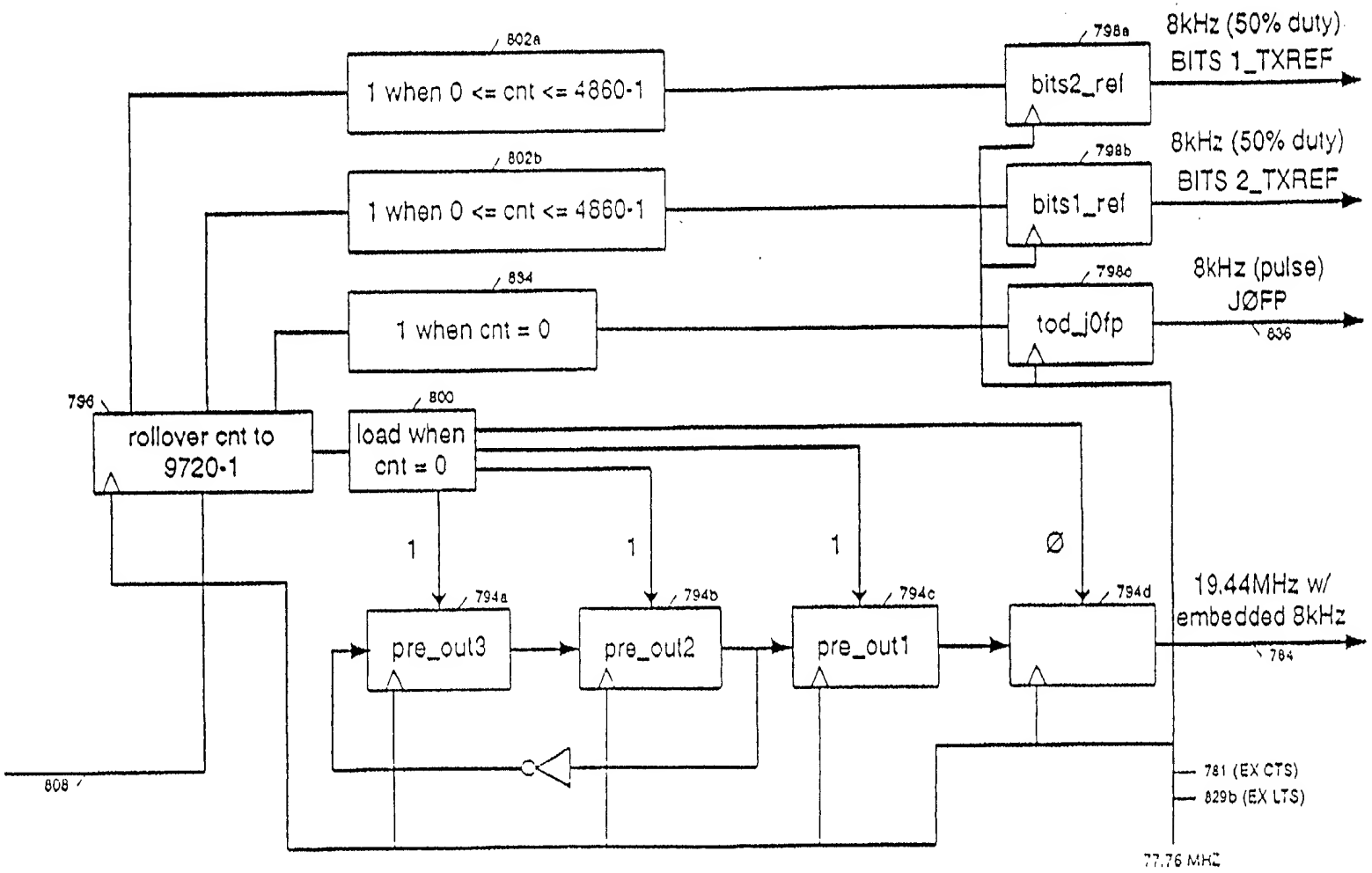


Fig. 52

Extractor

FIG. 53

TOKOTO-92695.60

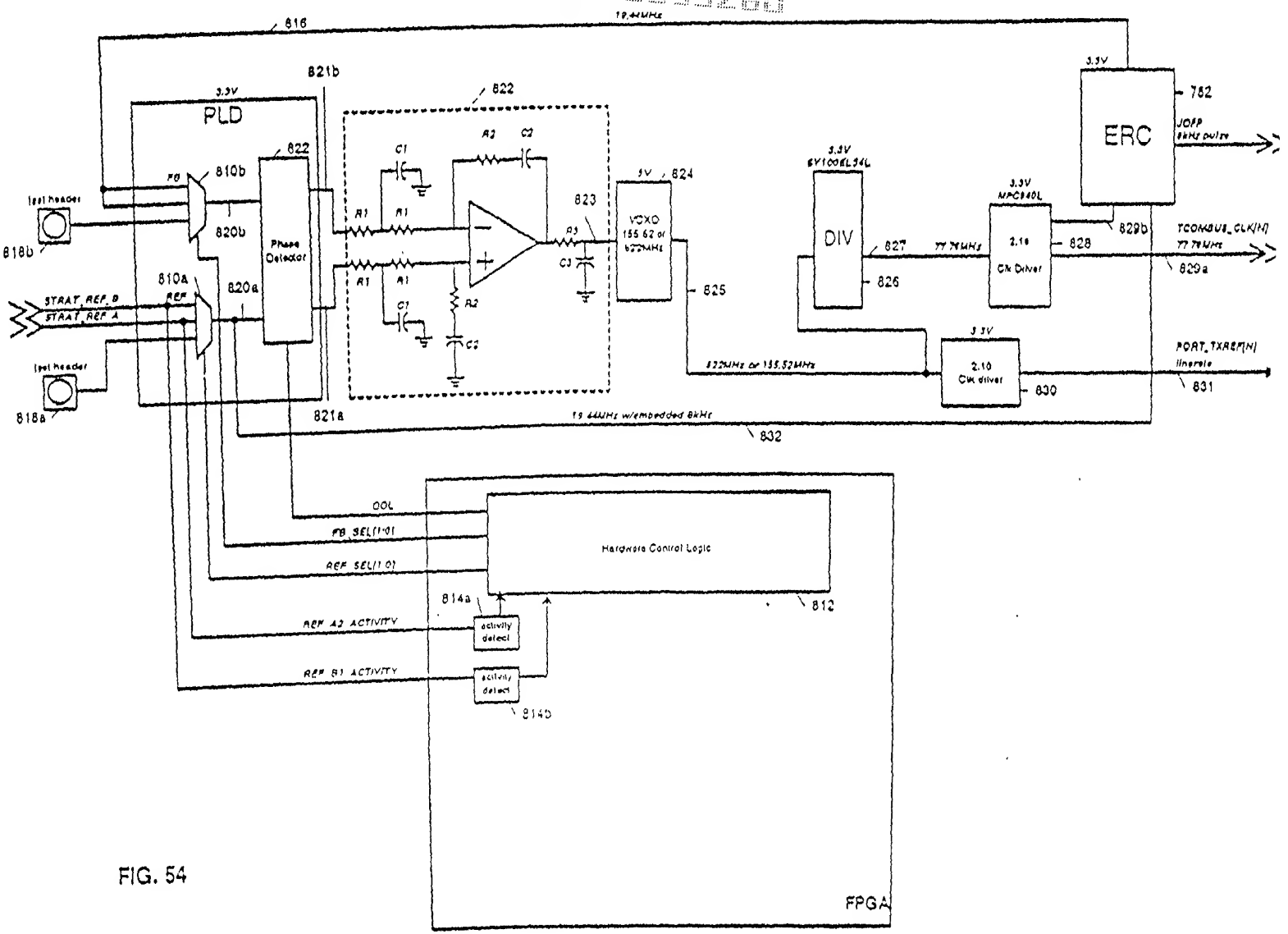


FIG. 54

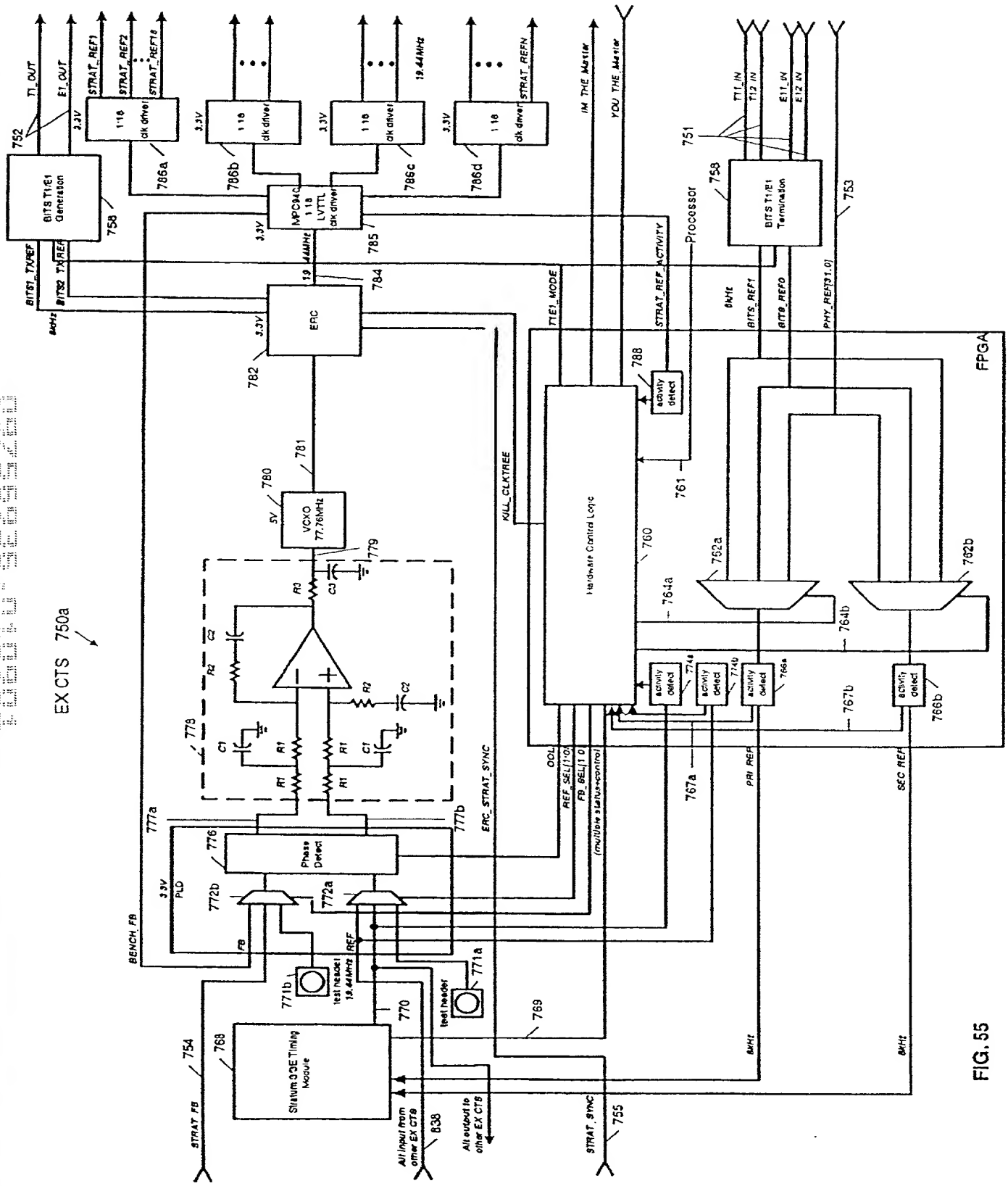

EX CTS 750a
FPGA
T1_OUT
E1_OUT
STRAT_REF1
STRAT_REF2
STRAT_REF3
STRAT_REFN
BITS T1/E1 Generation
BITS T1/E1 Termination
Processor
ERC
VCXO 77.76MHz
Hardware Control Logic
Phase Detect
Stratum 3/3E Timing Module
activity detect
test header
BENCH_FB
STRAT_FB
STRAT_SYNC
ERC_STRAT_SYNC
KILL_CLKTREE
T1E1_MODE
STRAT_REF_ACTIVITY
PRI REF
SEC REF
IM THE Master
YOU THE Master
T11_IN
T12 IN
E11_IN
E12 IN
BITS_REF1
BITS_REF0
PHY_REF[1:0]
752
751
758
753
786a
786b
786c
786d
785
784
782
781
780
779
788
761
760
762a
762b
764a
764b
766a
766b
767a
767b
774a
774b
776
772a
772b
771a
771b
770
769
768
754
755
838
All input from other EX CTS
All output to other EX CTS

FIG. 55

Sent By: Equipe Communications; 781 795 2031; Jul-12-00 3:57PM; Page 3/5

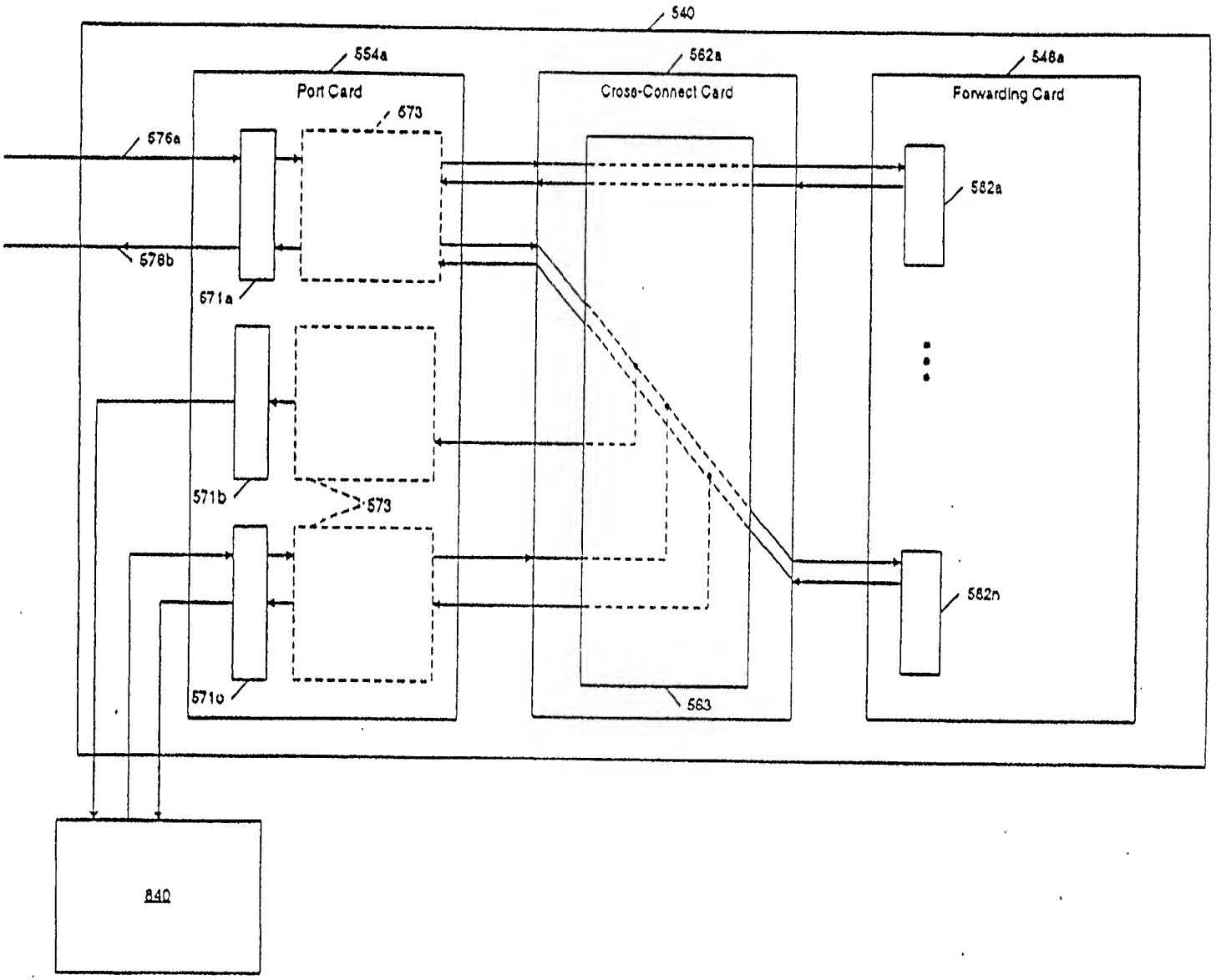
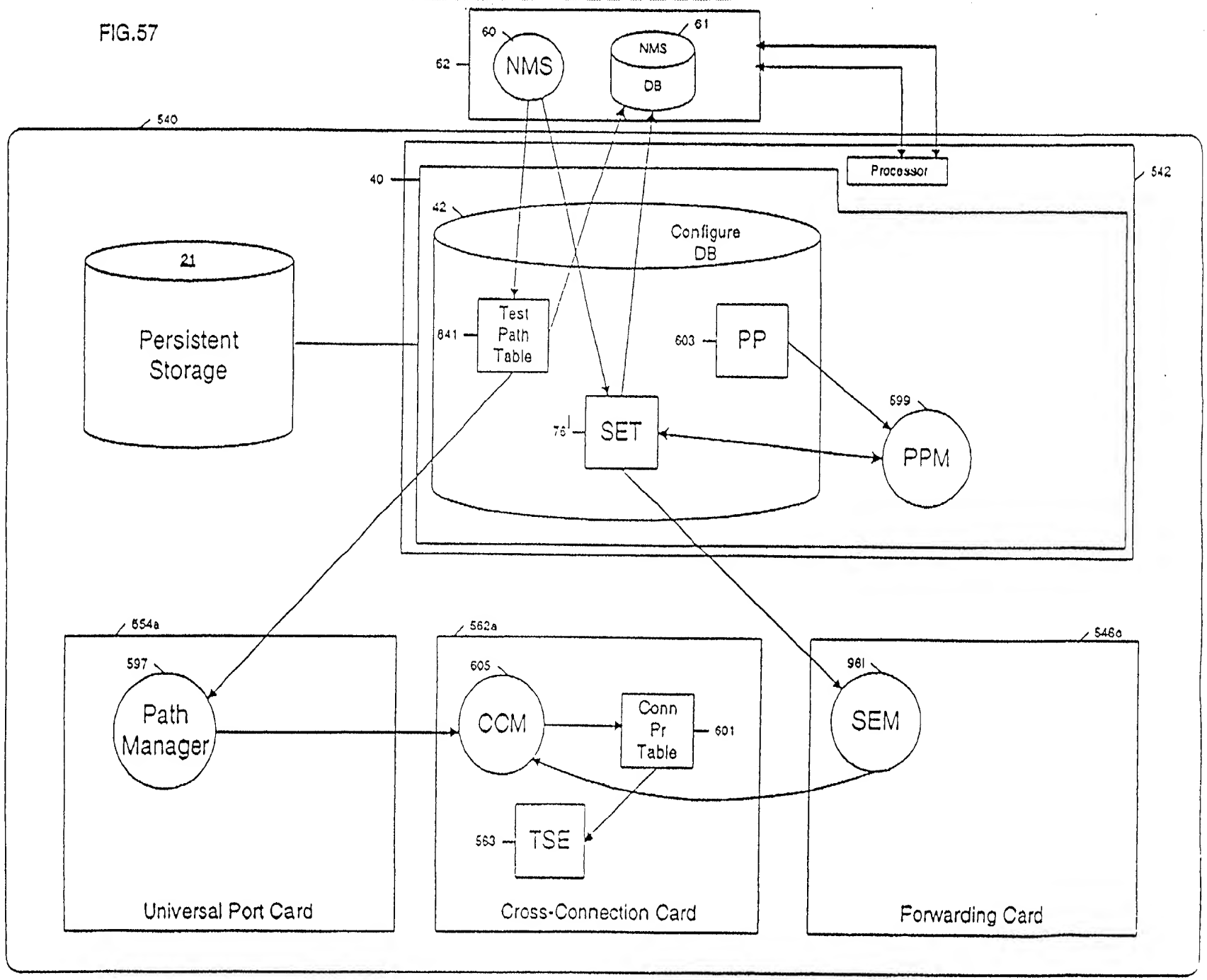


Fig. 56

Sent By: Equipe Communications; 781 795 2031; Jul-12-00 3:57PM; Page 4/5

FIG.57



Sent By: Equipe Communications; 781 795 2031; Jul-12-00 3:57PM; Page 5/5

FIG. 58

Test Path Table 841

	Path LID	UP Port LID	Time Slot	# of Time Slots	Monitor (844)	Enable Port Receiver (845)	...
842	1666	1232	4	3	Ingress	No	
843	1666	1233	4	3	Egress	No	
844	1666	1233	4	3	Ingress	Yes	
	⋮	⋮	⋮	⋮			⋮

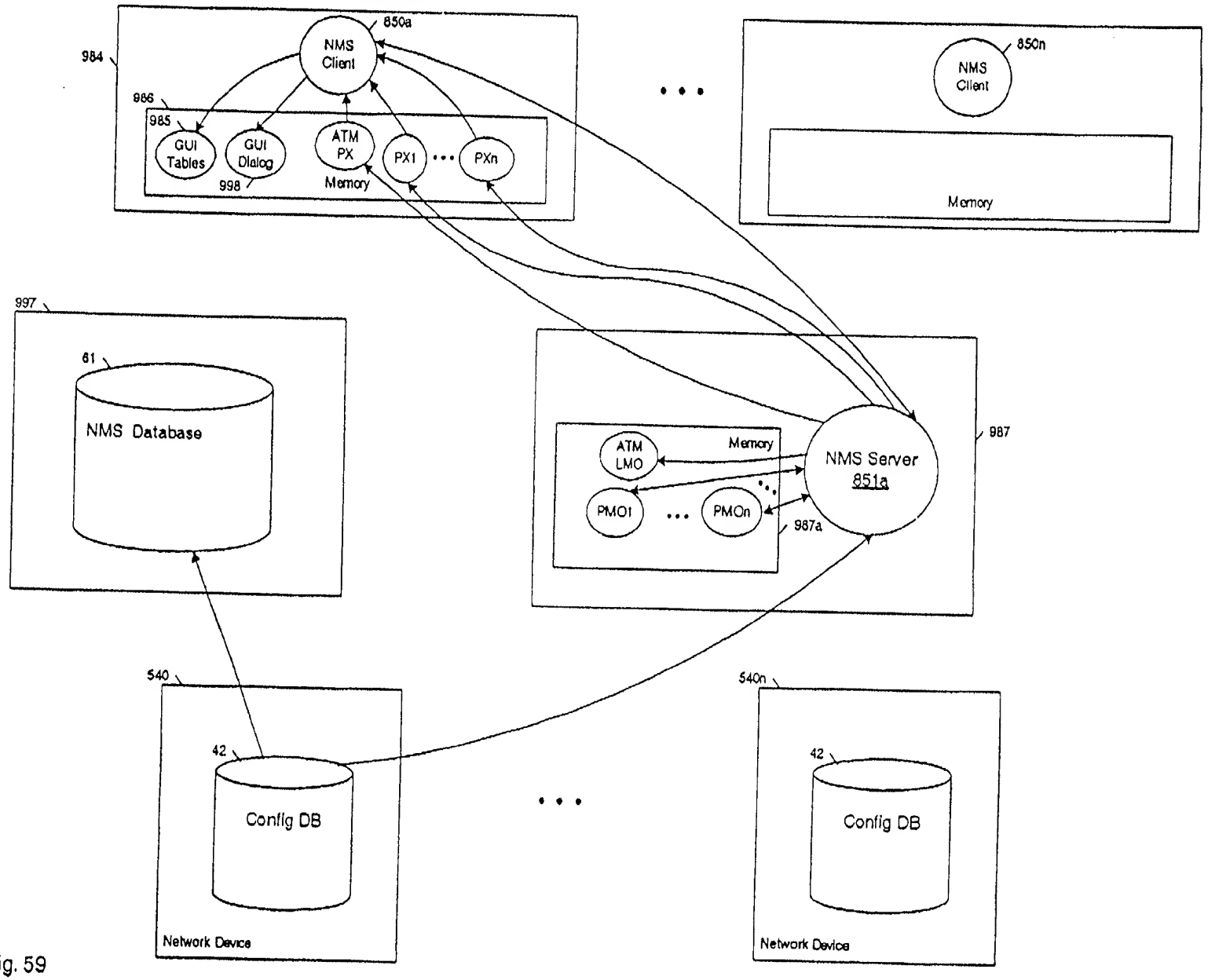

984
NMS Client
850a
986
985
GUI Tables
GUI Dialog
998
ATM PX
PX1
PXn
Memory
NMS Client
850n
Memory
997
61
NMS Database
ATM LMO
Memory
PMO1
PMOn
NMS Server
851a
987a
987
540
42
Config DB
Network Device
540n
42
Config DB
Network Device

Fig. 59

Fig. 60a

Managed Device Table

PID	A1	•••	An
1			

983b — PID

983 — An

983a — 1

Fig. 60b

Chassis Table

PID	A1	•••	An	Managed Device PID
1				1
⋮	⋮	⋮	⋮	⋮

988b — PID

988c — Managed Device PID

988 — An

988a — 1

Fig. 60c

Shelf Table

PID	A1	•••	An	Chassis PID
3				2
4				2
⋮	⋮	⋮	⋮	⋮
18				2

989a — PID

989 — Chassis PID

989b — An

Fig. 60d

Slot Table

PID	A1	•••	An	Shelf PID
20				3
21				3
⋮	⋮	⋮	⋮	⋮
116				18

990a — PID

990 — Shelf PID

990b — An

990c — 20

990d — 116

Sent By: Equipe Communications; 781 795 2031; Oct-9-00 6:54PM; Page 6

Page 7/16
Oct-9-00 04PM;
781 795 2031;
It By: Equipe Communications;

CARD TABLE

47a 47b 47

PID	CWD TYPE	VERSION NO.	SLOT PID	...
120	0XF002	3	20	
121	0XF002	4	21	
⋮	⋮	⋮	⋮	⋮
124	0X6002	1	24	
⋮	⋮	⋮	⋮	⋮
131	0XF002	1	31	
⋮	⋮	⋮	⋮	⋮

FIG. 60e

Page 8/16
Oct-9-00 (5PM;
781 795 2031;
It By: Equipe Communications;

PORT TABLE

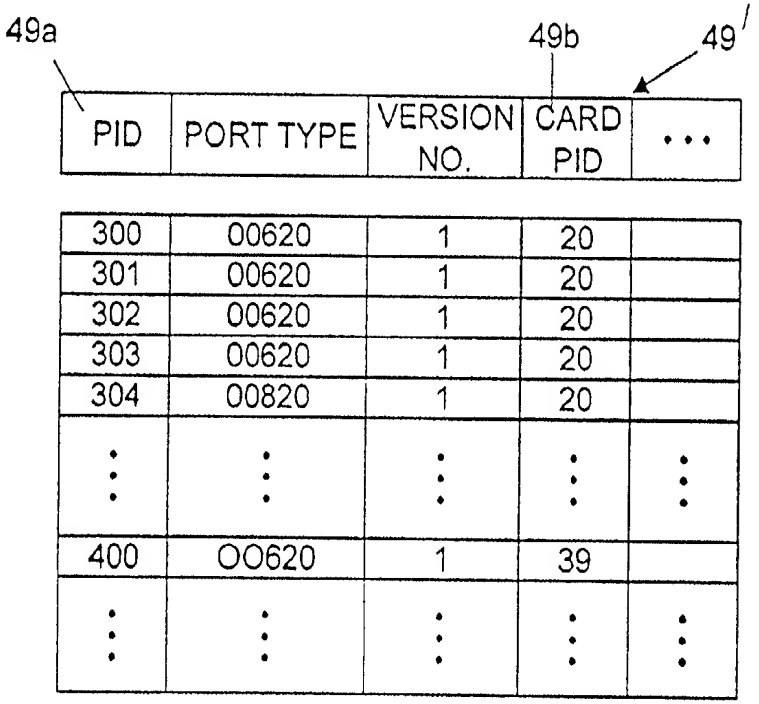


FIG. 60f

nt By: Equipe Communications; 781 795 2031; Oct-9-00 5:55PM; Page 9/16

FIG. 60g

SONET Path Table 600

600a 600b

Path LID	Port PID	Time Slot	# of Time Slots	...
901	304	4	3	
⋮	⋮	⋮	⋮	⋮

nt By: Equipe Communications; 781 795 2031; Oct-9-00 5:5PM; Page 10/18

FIG. 60h

Service EndPoint Table 76 //

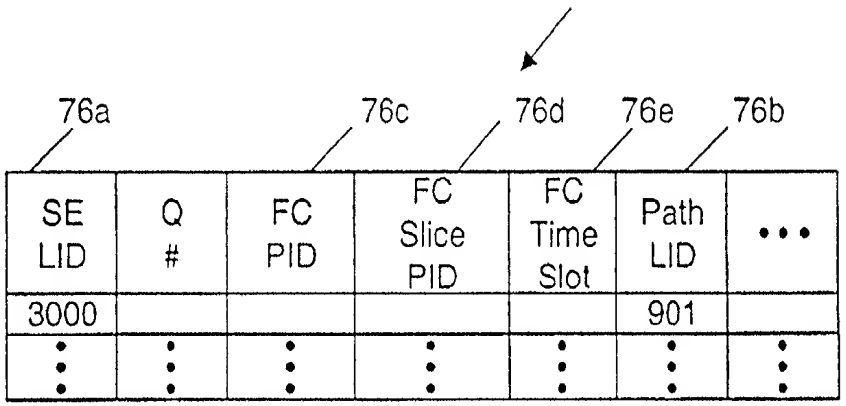


Fig. 60i

ATM IF Table

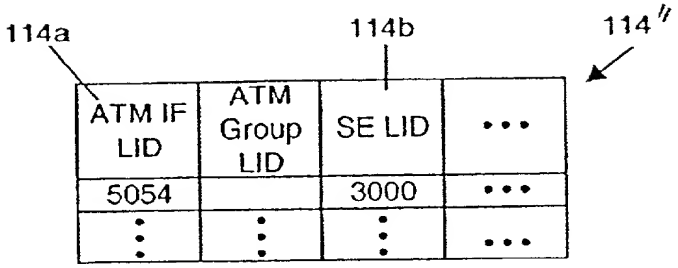


EXHIBIT 1005

Fig. 60j

Virtual ATM IF Table

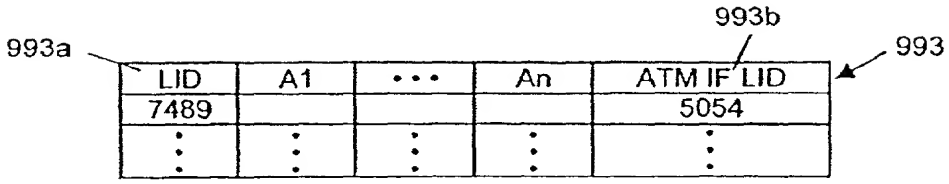


Fig. 60k

Virtual Connection Table

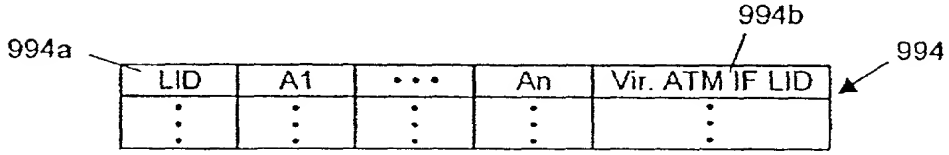


Fig. 60L

Virtual Link Table

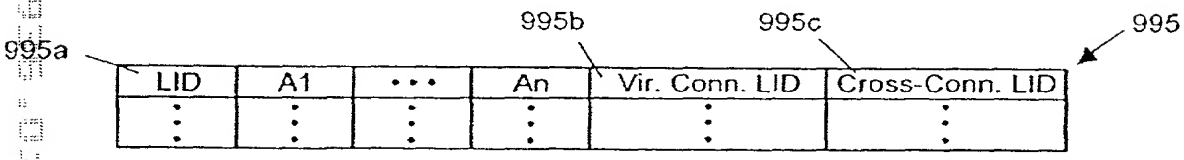
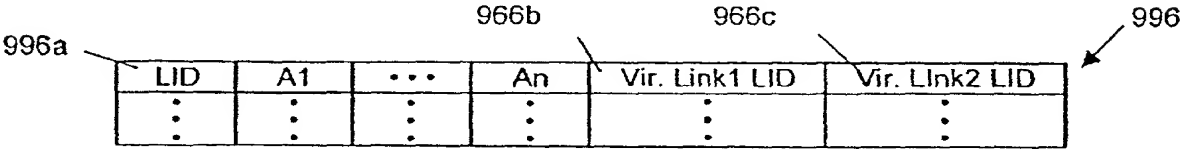


Fig. 60m

Cross-Connect Table

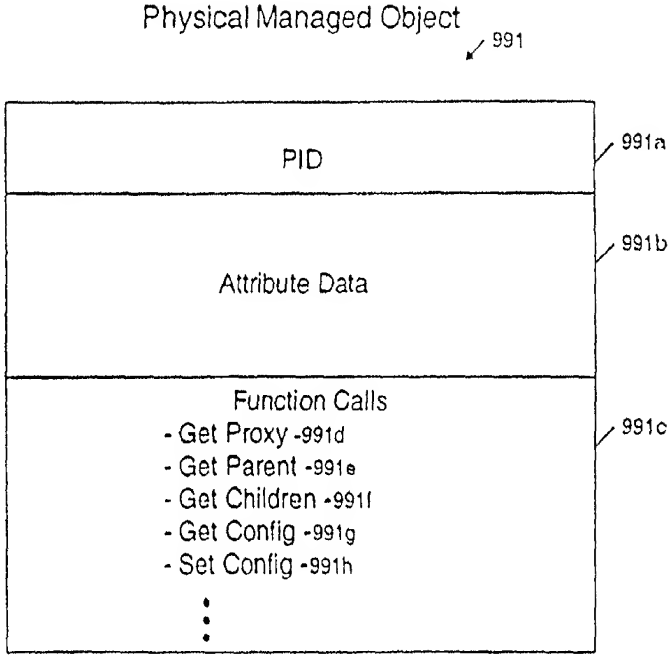


Sent By: Equipe Communications; 781 795 2031; Oct-9-00 6:55PM; Page 12/16

T0600FD 92695260

Page 14/16 Oct-9-00 (PM; 81 795 2031; By: Equipe Communications;

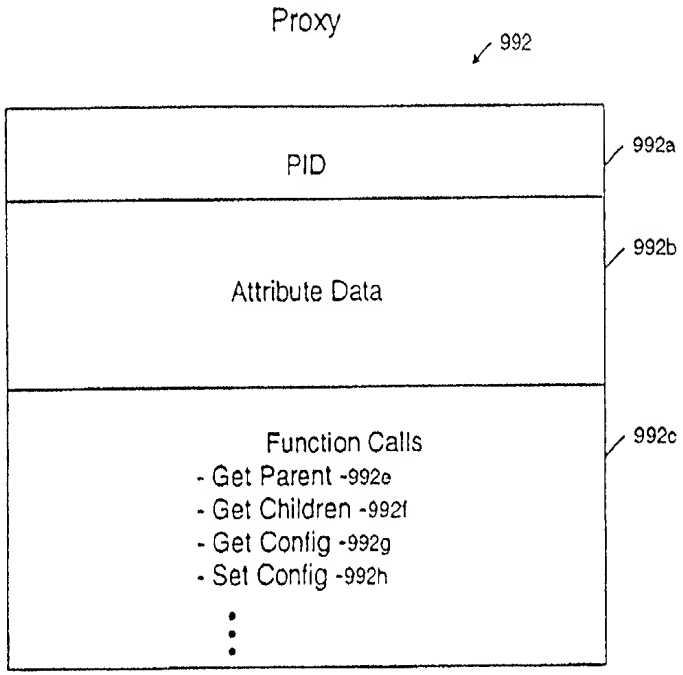
Fig. 61a



t By: Equipe Communications; 781 795 2031; Oct-9-00 (5PM; Page 15/16

T06070 "9E695260

Fig. 61b



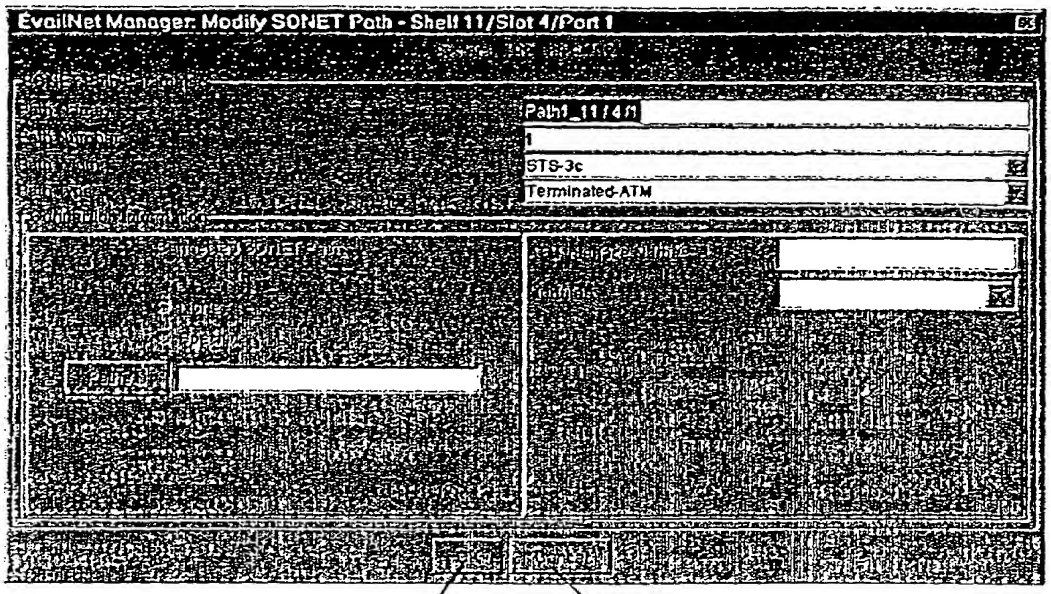
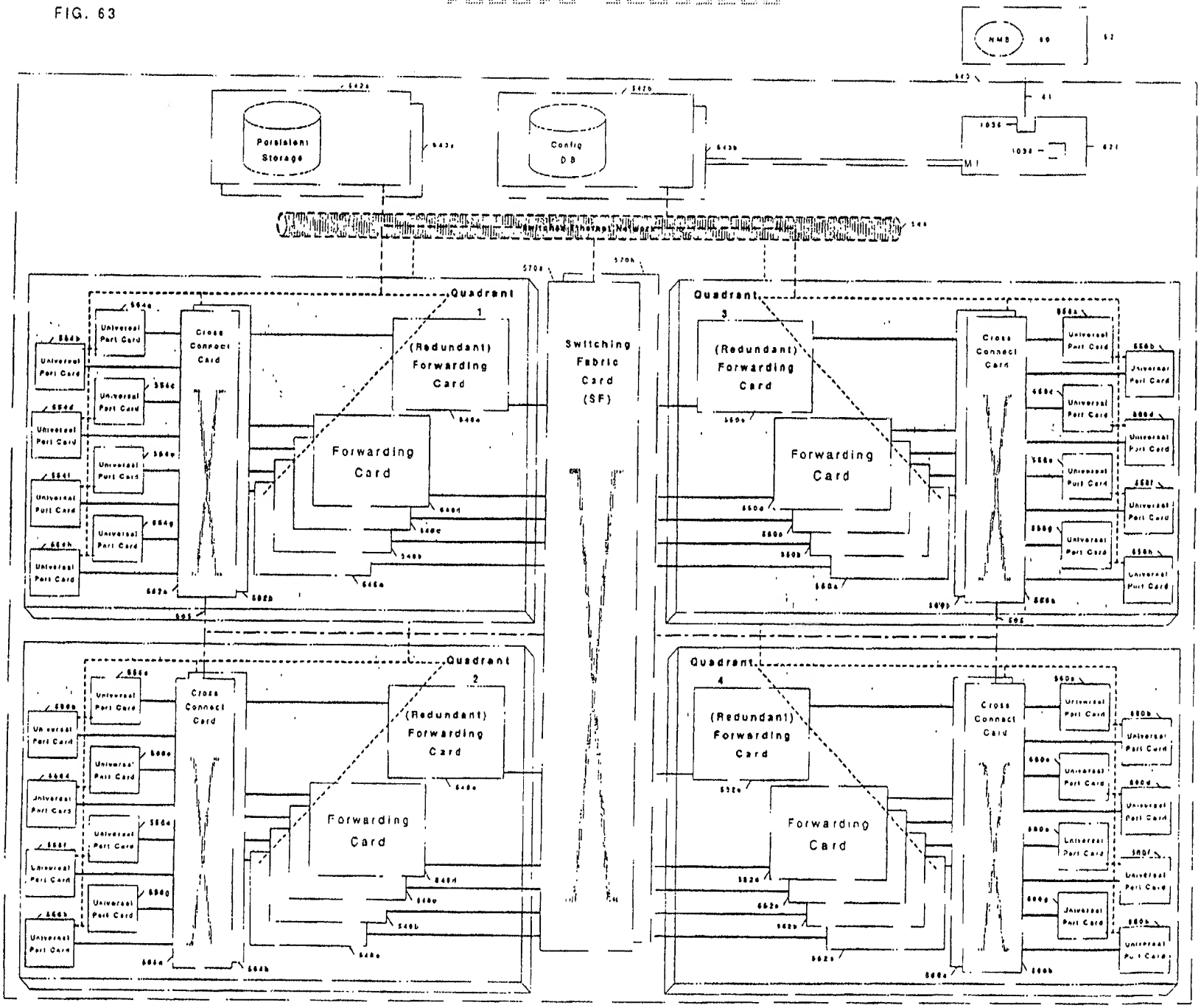

997
EvailNet Manager: Modify SONET Path - Shelf 11/Slot 4/Port 1
Path1_11/4/1
1
STS-3c
Terminated-ATM
998b
997a

Fig. 62

FIG. 63


Persistent Storage
Config DB
NMS
Switching Fabric Card (SF)
Quadrant 1
Quadrant 2
Quadrant 3
Quadrant 4
(Redundant) Forwarding Card
Forwarding Card
Cross Connect Card
Universal Port Card

Sent By: Equipe Communications; 781 795 2031; Nov-3- 5:18PM; Page 4/4

Fig. 64

Administration Managed Device Table

1014

1014a LID	Host Address	Port Address	Retry	Timeout	Admin. Password	Prov. Password	Viewer Password	1014e Physical ID	1014f Physical ID
9046	192.168.9.202	1521			team 1	team 2	team 3		
⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮

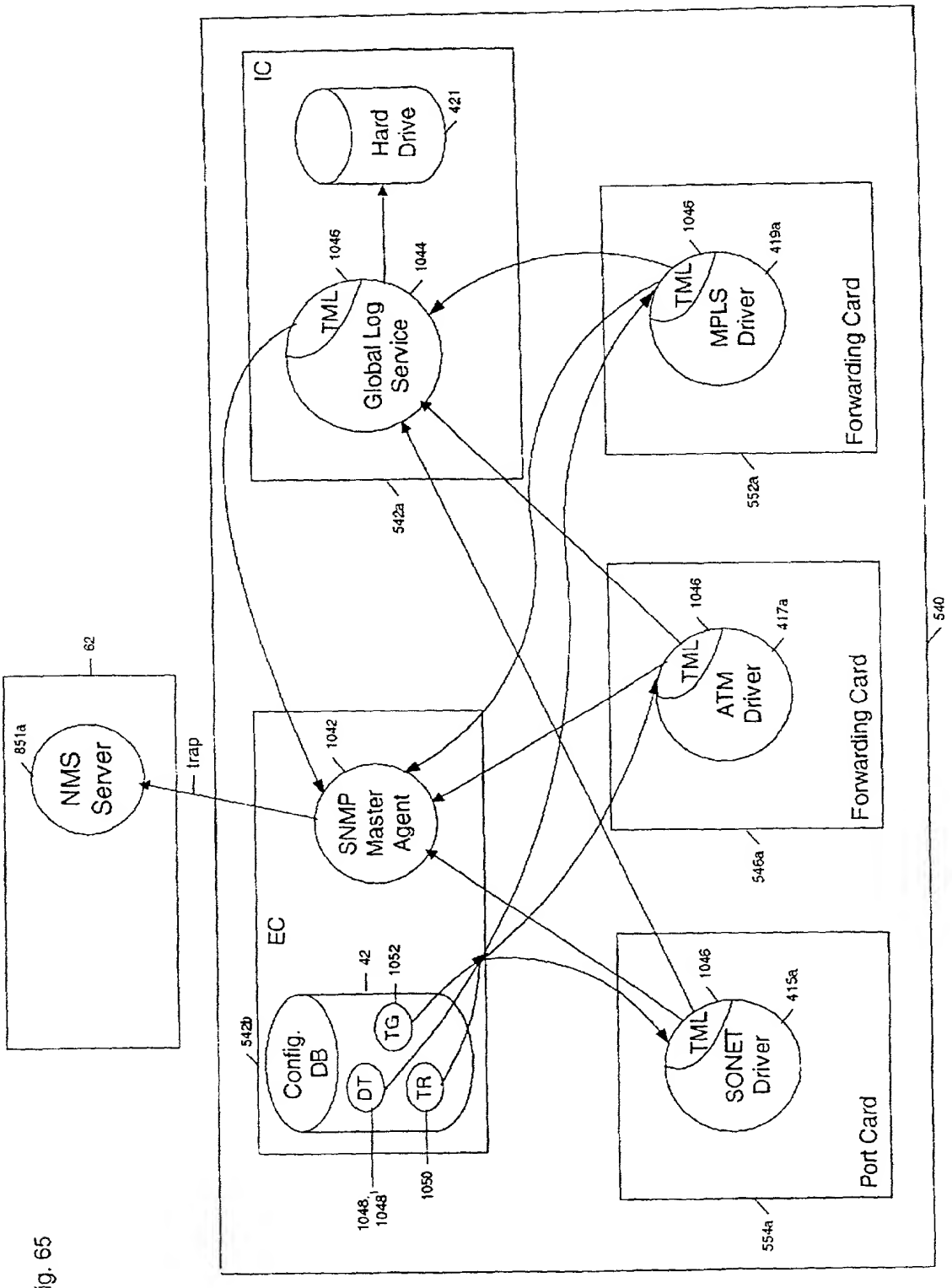

62
NMS Server
851a
trap
540
IC
Hard Drive
421
TML
1046
Global Log Service
1044
542a
EC
SNMP Master Agent
1042
Config. DB
542b
42
1052
TG
DT
TR
1048
1048'
1050
Forwarding Card
MPLS Driver
419a
552a
ATM Driver
417a
546a
Port Card
SONET Driver
415a
554a

Fig. 65

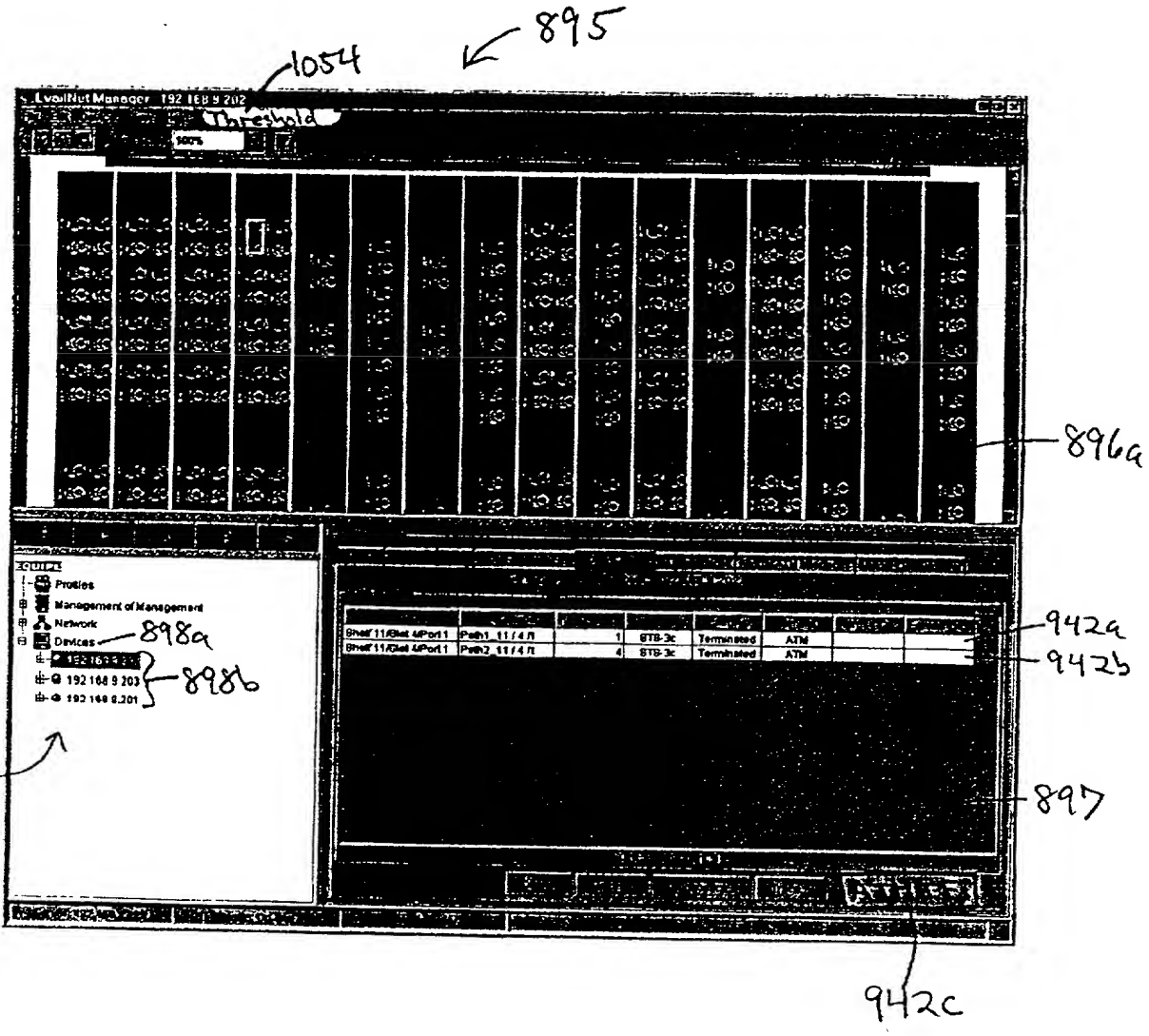


Fig. 66a

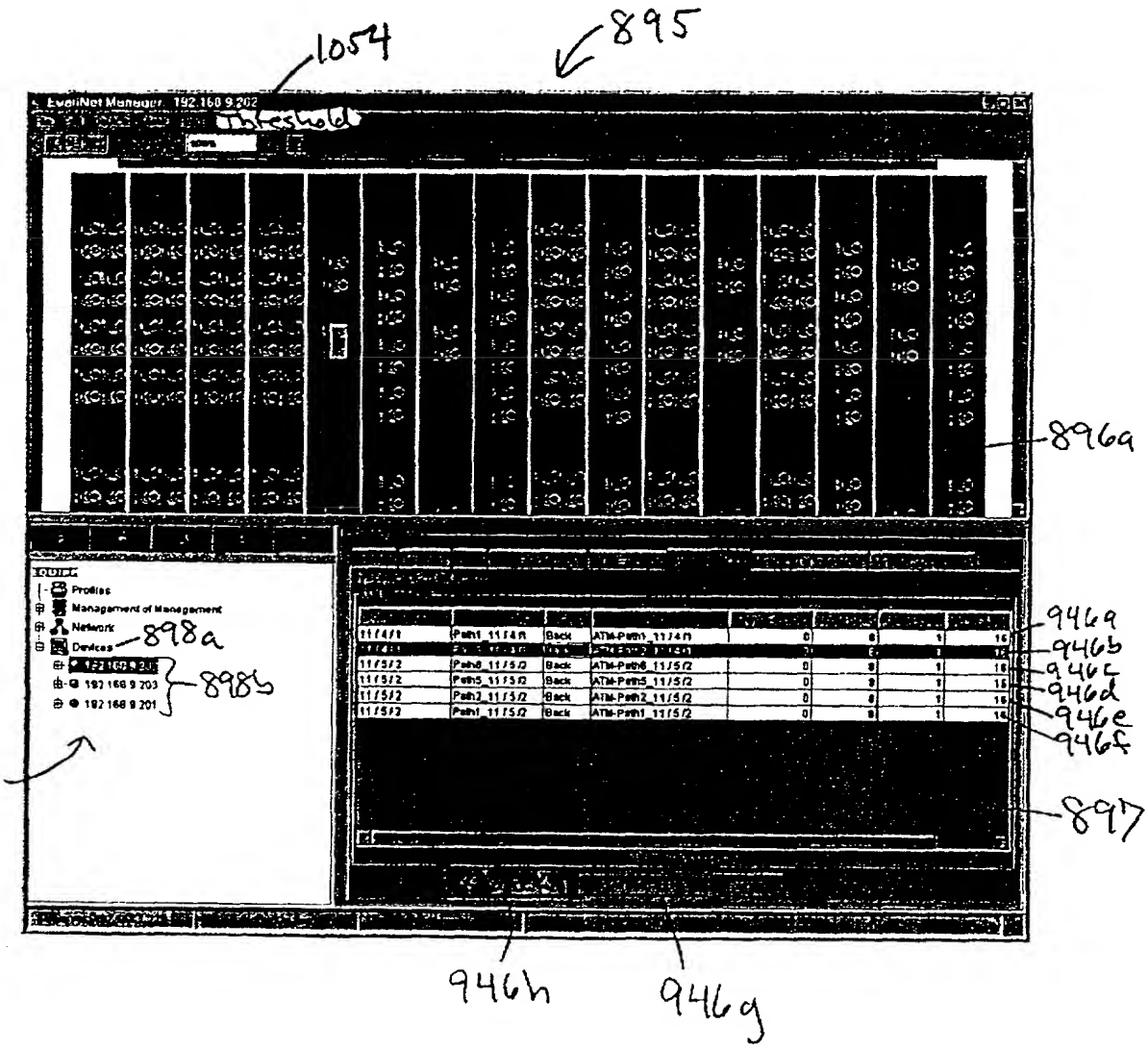

1054
895
896a
898a
898b
898
946a
946b
946c
946d
946e
946f
897
946h
946g

Fig. 66

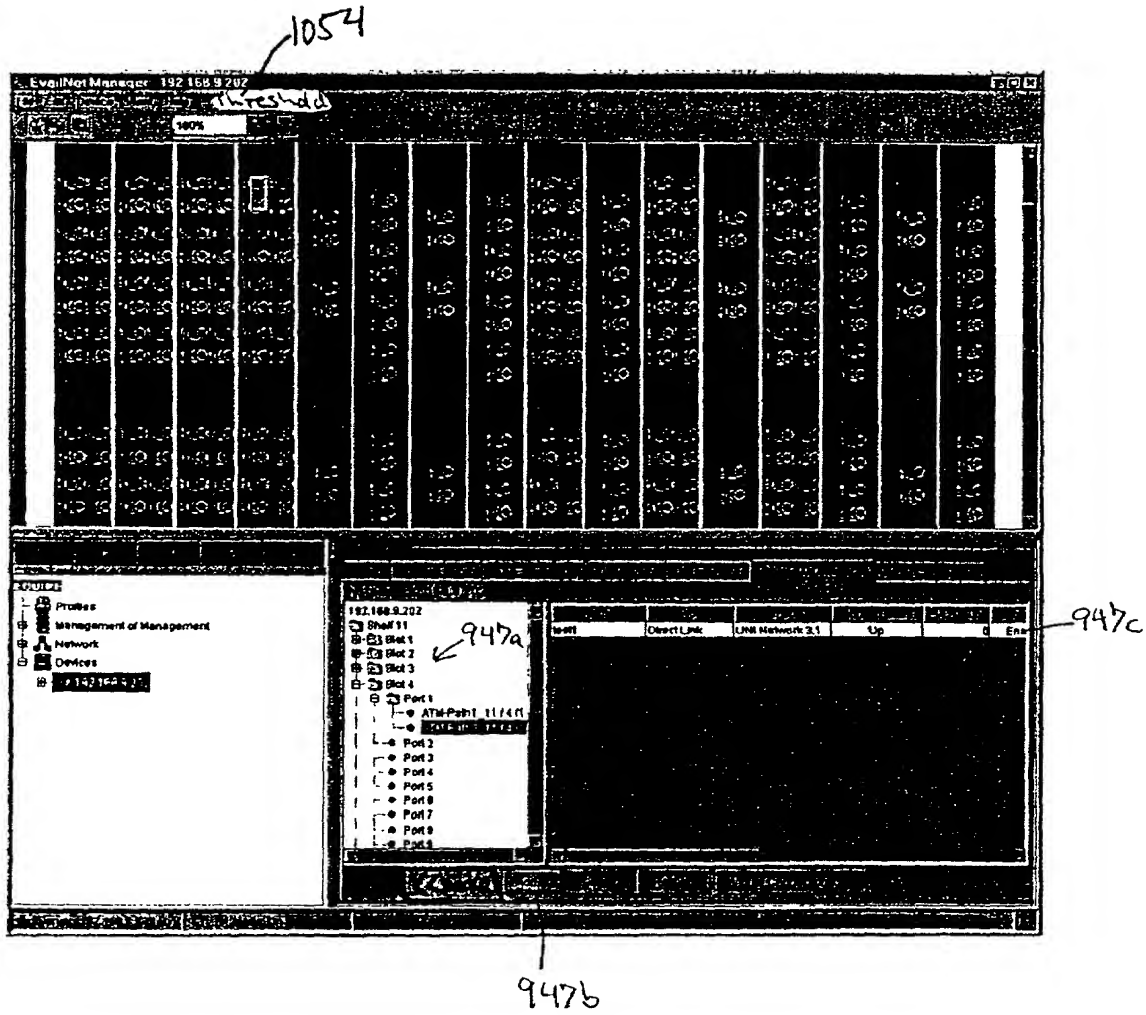


Fig. 66c

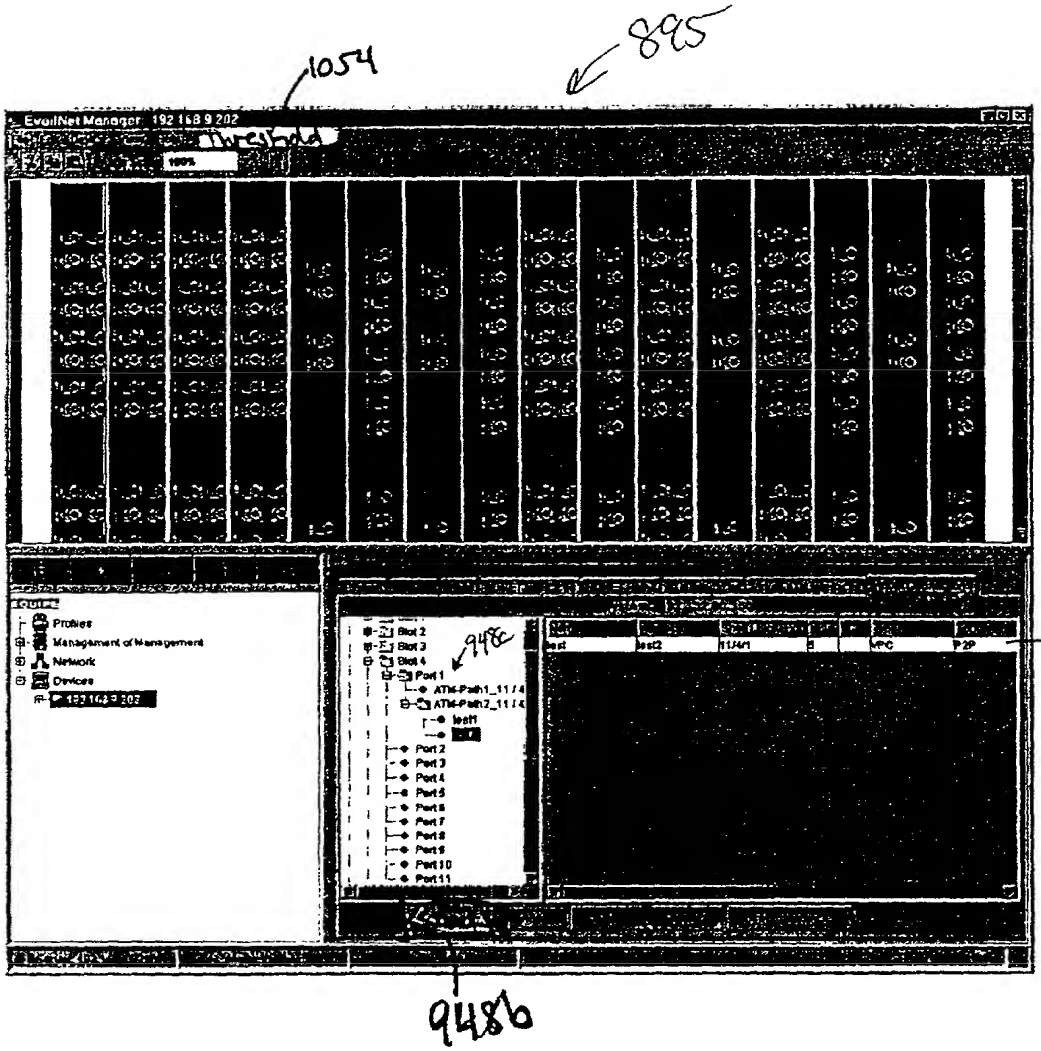

1054
895
EvoilNet Manager 192.168.9.202
Profiles
Management of Management
Network
Devices
948c
948a
948b

Fig. 66d

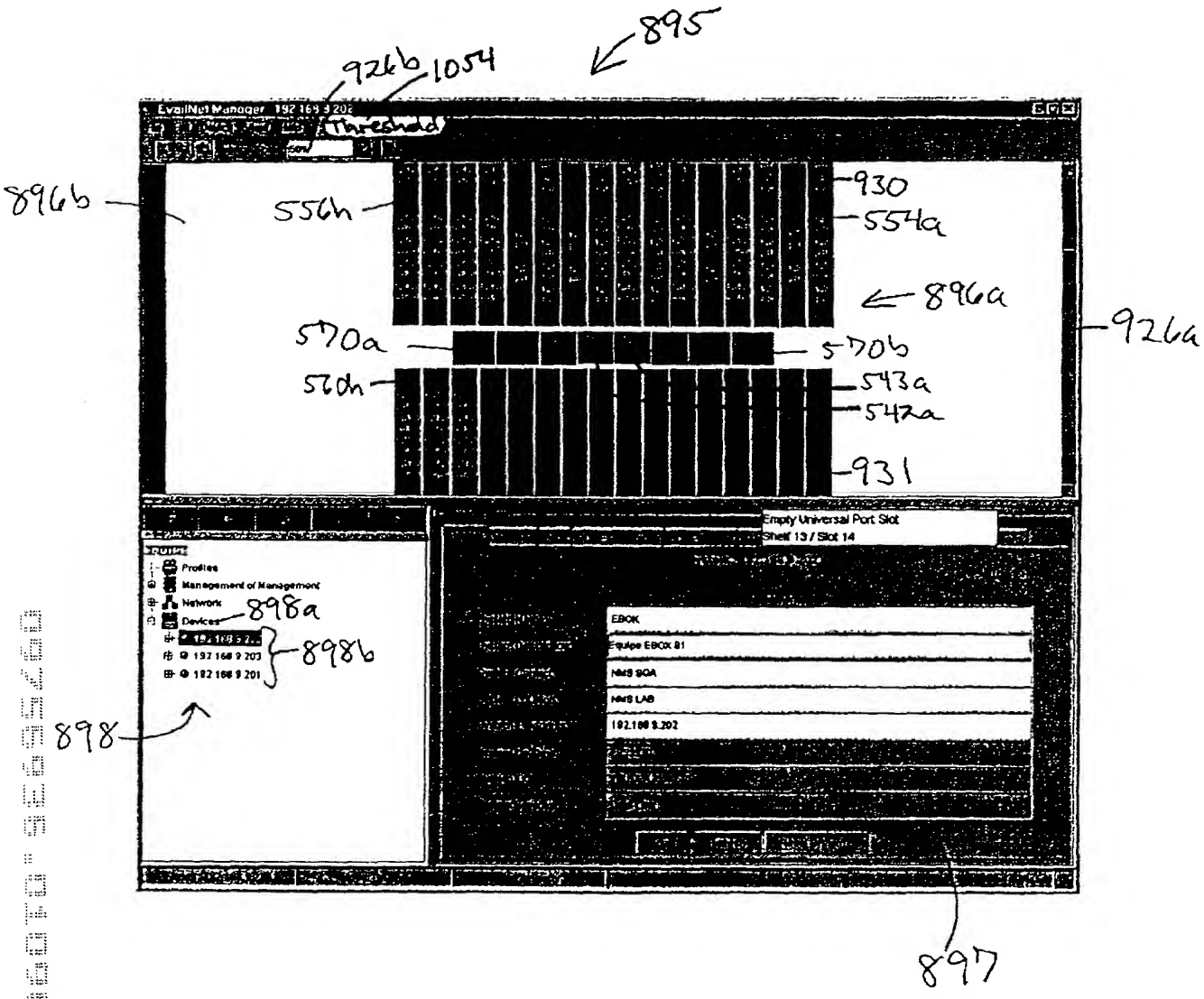

895
926b
1054
Threshold
896b
556h
930
554a
896a
926a
570a
570b
576h
543a
542a
931
Empty Universal Port Slot
Shelf 13 / Slot 14
Profiles
Management of Management
Network
Devices
898a
898b
898
EBOK
Equipe EBOX 81
NMS SQA
NMS LAB
192.168.9.202
897

Fig. 66e

Fig. 67

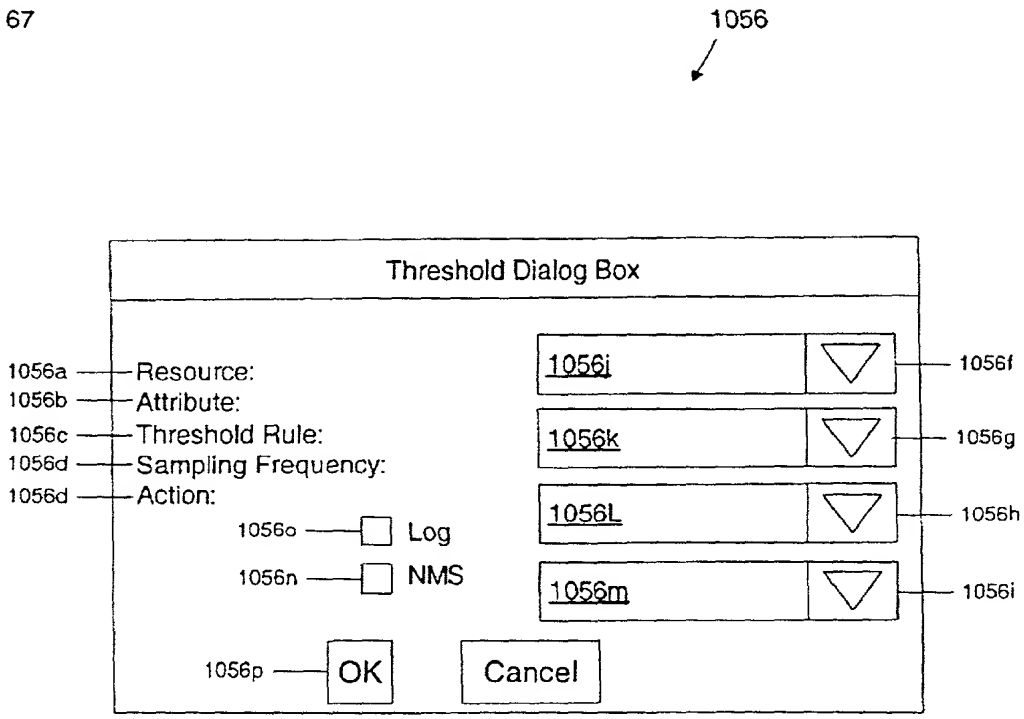

1056
Threshold Dialog Box
1056a
Resource:
1056b
Attribute:
1056c
Threshold Rule:
1056d
Sampling Frequency:
1056d
Action:
1056o
Log
1056n
NMS
1056p
OK
Cancel
1056j
1056f
1056k
1056g
1056L
1056h
1056m
1056i

Fig. 68

1048

Dynamic Threshold Table

	1048a Resource ID	1048c Attribute	1048d Sampling Freq.	1048e Action	1048f Rule
1048g	901	Unavailable Seconds (Path end)	15 min	Log	if attribute > 10
	901	Path Errors (path end)	15 min	trap	if attribute <5 or >10
	901	Path Errors (path end)	5 min	Log & trap	if attribute <5 or >10
	•	•	•	•	•
	5054	failed call attempts	10 min	trap	if attribute >8 between 8:00am-7:00pm or >2 between 7:00pm-8:00am
1048h	5054	hcs errors	12 min	trap	if attribute >13
	•	•	•	•	•
	7312	Rx Traffic	1 hour	trap	if attribute <4
	7312	Tx Traffic	1 hour	trap	if attribute =Ø
		•	•	•	•

T0600T0 "SE69560

Fig. 69a

1048

Dynamic Threshold Table

1048a Thr. Group LID	1048b Resource	1048c Attribute	1048d Sampling Freq.	1048e Action	1048f Rule
8312	SONET Path	Unavailable Seconds (Path end)	15 min	Log	if attribute > 10
8312	SONET Path	Path Errors (Path end)	15 min	trap	if attribute <5 or >10
8312	SONET Path	Path Errors (far end)	5 min	Log & trap	if attribute <5 or >10
⋮	⋮	⋮	⋮	⋮	⋮
8433	ATM If	failed call attempts	10 min	trap	if attribute >8 between 8:00am-7:00pm or >2 between 7:00pm-8:00am
8433	ATM If	hcs errors	12 min	trap	if attribute >13
⋮	⋮	⋮	⋮	⋮	⋮
8542	Virtual Conn.	Rx Traffic	1 hour	trap	if attribute <4
8542	Virtual Conn.	Tx Traffic	1 hour	trap	if attribute =Ø
	⋮	⋮	⋮	⋮	⋮

Sent By: Equipe Communications; 781 795 2031; Nov-20-00 10:31AM; Page 10/14

Fig. 69b

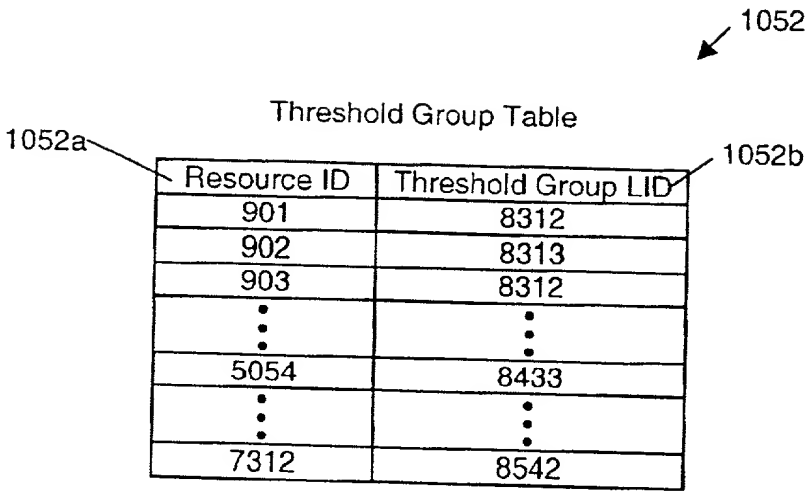

1052
Threshold Group Table
1052a
1052b
Resource ID
Threshold Group LID
901
8312
902
8313
903
8312
5054
8433
7312
8542

Fig. 70a

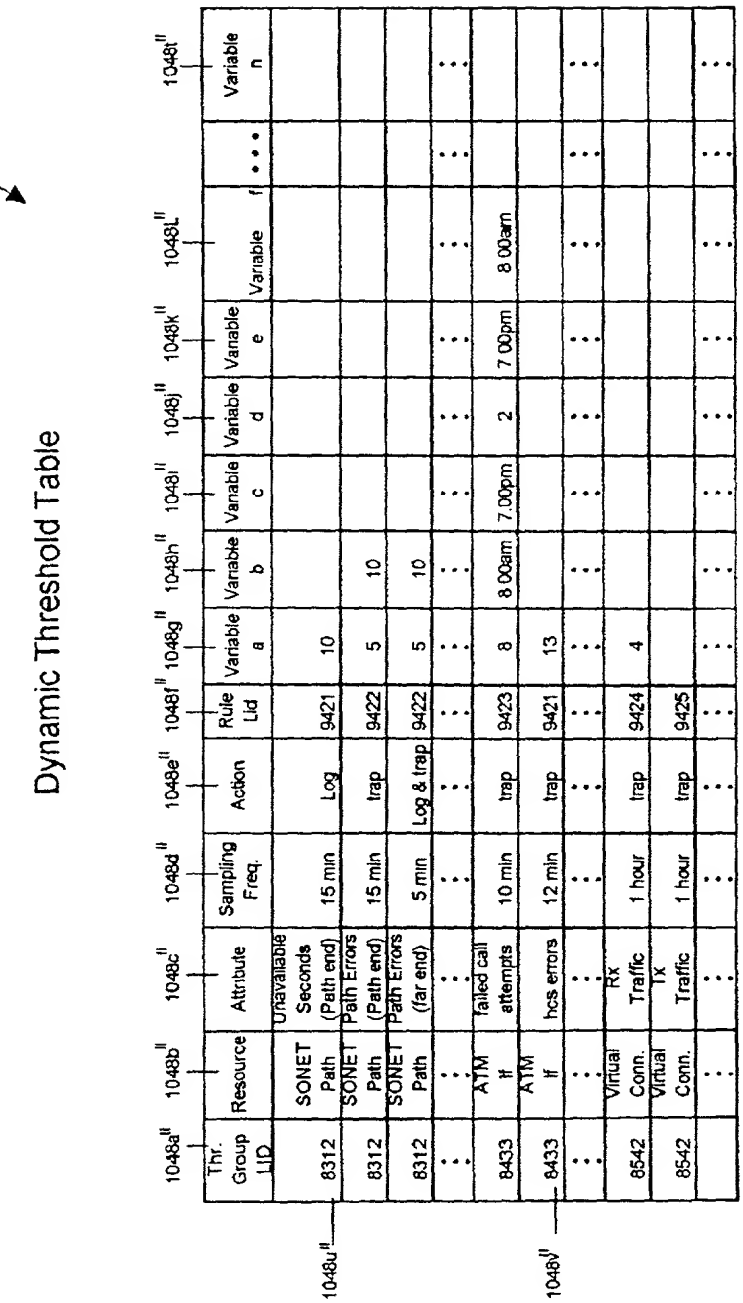

1048''
Dynamic Threshold Table
1048a''
1048b''
1048c''
1048d''
1048e''
1048f''
1048g''
1048h''
1048i''
1048j''
1048k''
1048L''
1048t''
1048u''
1048v''
Thr. Group LID
Resource
Attribute
Sampling Freq.
Action
Rule Lid
Variable a
Variable b
Variable c
Variable d
Variable e
Variable f
Variable n
8312
SONET Path
Unavailable Seconds (Path end)
15 min
Log
9421
10
8312
SONET Path
Path Errors (Path end)
15 min
trap
9422
5
10
8312
SONET Path
Path Errors (far end)
5 min
Log & trap
9422
5
10
8433
ATM If
failed call attempts
10 min
trap
9423
8
8 00am
7 00pm
2
7 00pm
8 00am
8433
ATM If
hcs errors
12 min
trap
9421
13
8542
Virtual Conn.
Rx Traffic
1 hour
trap
9424
4
8542
Virtual Conn.
Tx Traffic
1 hour
trap
9425

Fig. 70b

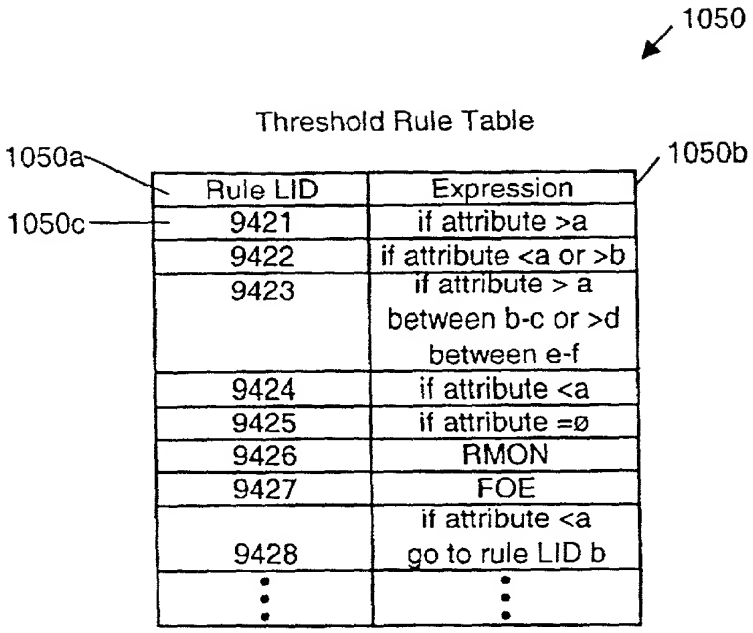

1050
Threshold Rule Table
1050a
1050b
1050c
Rule LID
Expression
9421
if attribute >a
9422
if attribute <a or >b
9423
if attribute > a between b-c or >d between e-f
9424
if attribute <a
9425
if attribute =ø
9426
RMON
9427
FOE
9428
if attribute <a go to rule LID b

Fig. 71

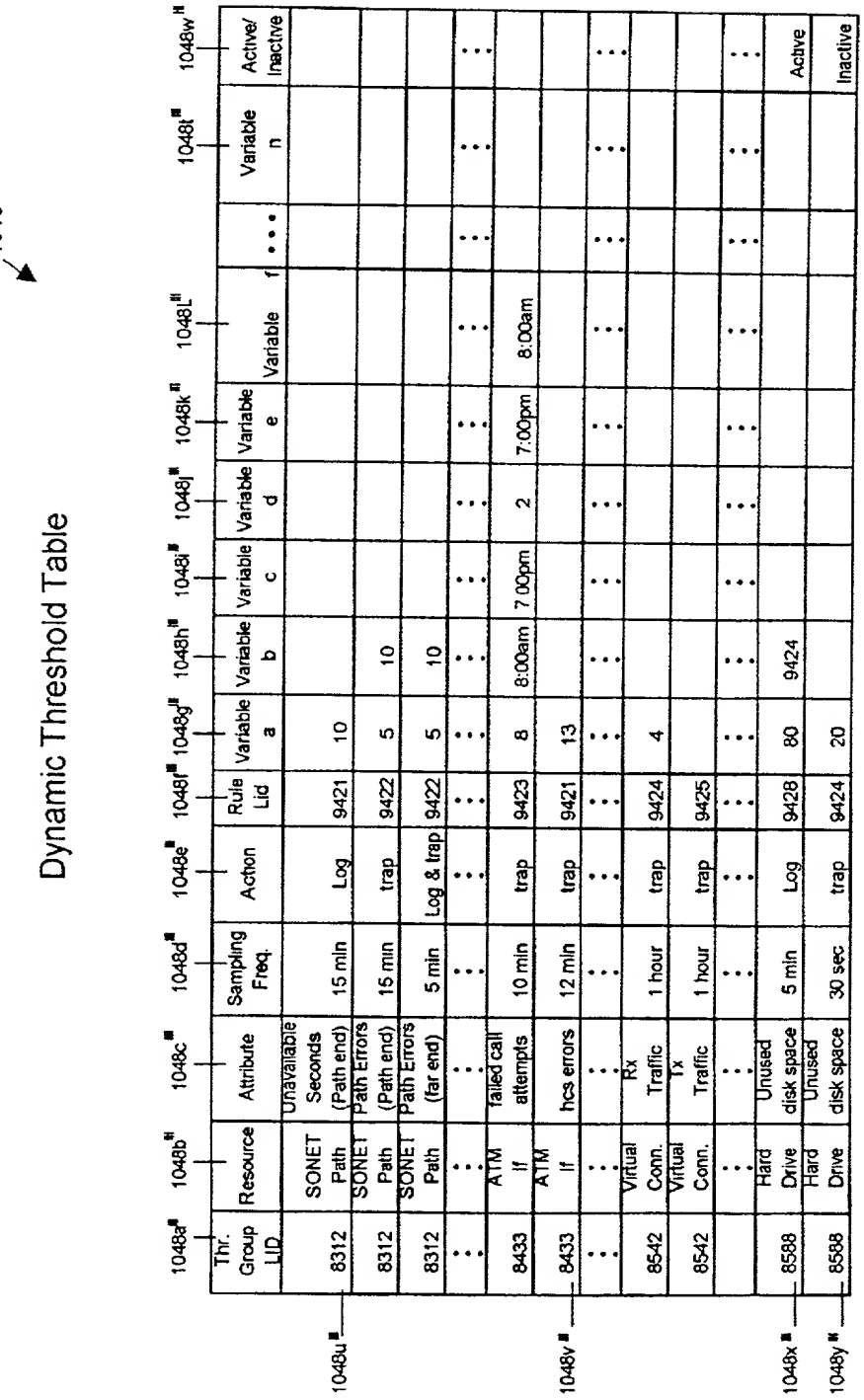

1048
Dynamic Threshold Table
1048a
1048b
1048c
1048d
1048e
1048f
1048g
1048h
1048i
1048j
1048k
1048L
1048t
1048w
Thr. Group LID
Resource
Attribute
Sampling Freq.
Action
Rule Lid
Variable a
Variable b
Variable c
Variable d
Variable e
Variable f
• • •
Variable n
Active/ Inactive
1048u
1048v
1048x
1048y
8312
SONET Path
Unavailable Seconds (Path end)
15 min
Log
9421
10
10
8312
SONET Path
Path Errors (Path end)
15 min
trap
9422
5
10
8312
SONET Path
Path Errors (far end)
5 min
Log & trap
9422
5
10
8433
ATM If
failed call attempts
10 min
trap
9423
8
8:00am
7:00pm
2
7:00pm
8:00am
8433
ATM If
hcs errors
12 min
trap
9421
13
8542
Virtual Conn.
Rx Traffic
1 hour
trap
9424
4
8542
Virtual Conn.
Tx Traffic
1 hour
trap
9425
8588
Hard Drive
Unused disk space
5 min
Log
9428
80
9424
Active
8588
Hard Drive
Unused disk space
30 sec
trap
9424
20
Inactive

Fig. 7 2a

Fig. 7 2b

Fig. 73a

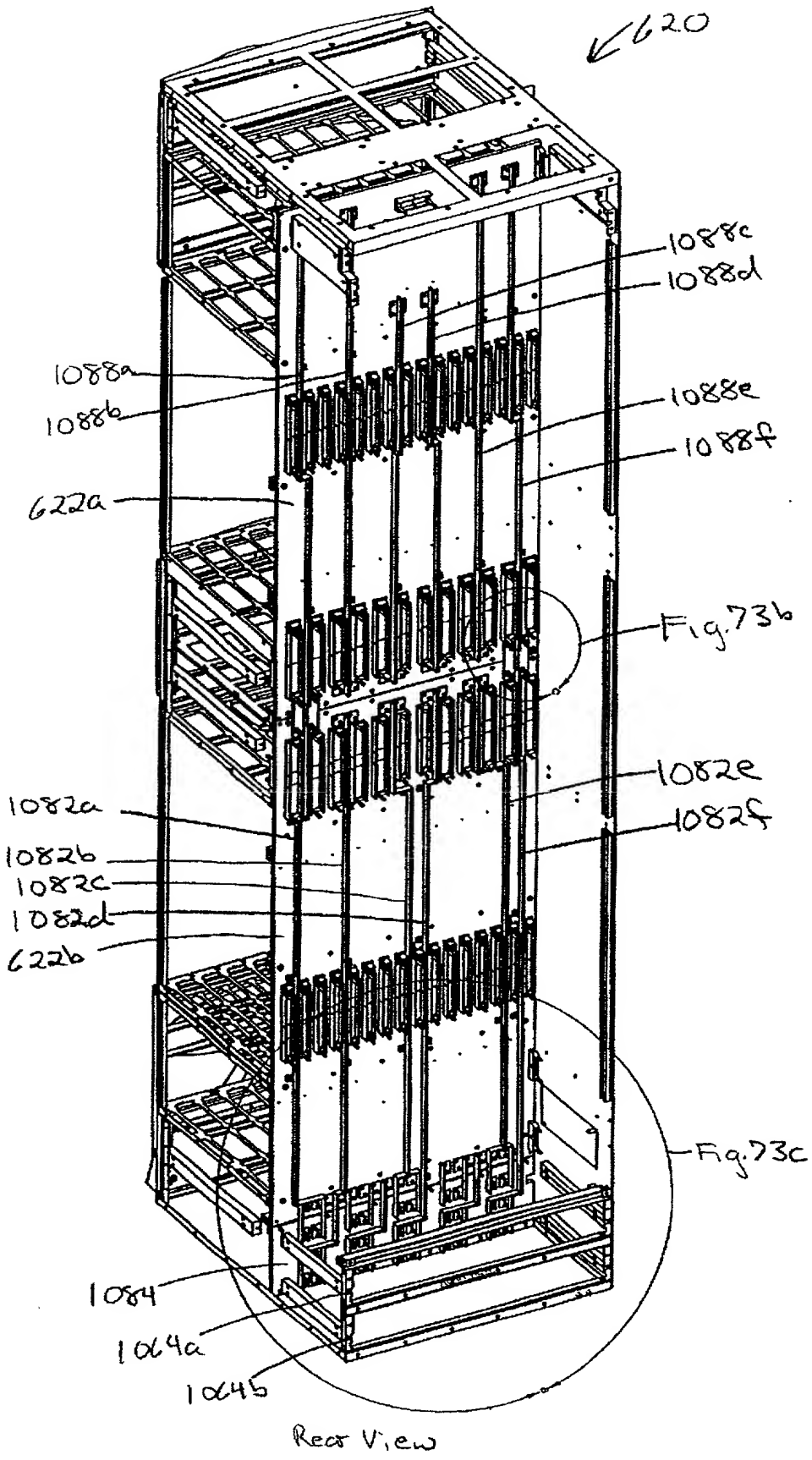

620
1088c
1088d
1088a
1088b
1088e
1088f
622a
Fig. 73b
1082e
1082a
1082f
1082b
1082c
1082d
622b
Fig. 73c
1084
1084a
1084b
Rear View

Fig. 73b

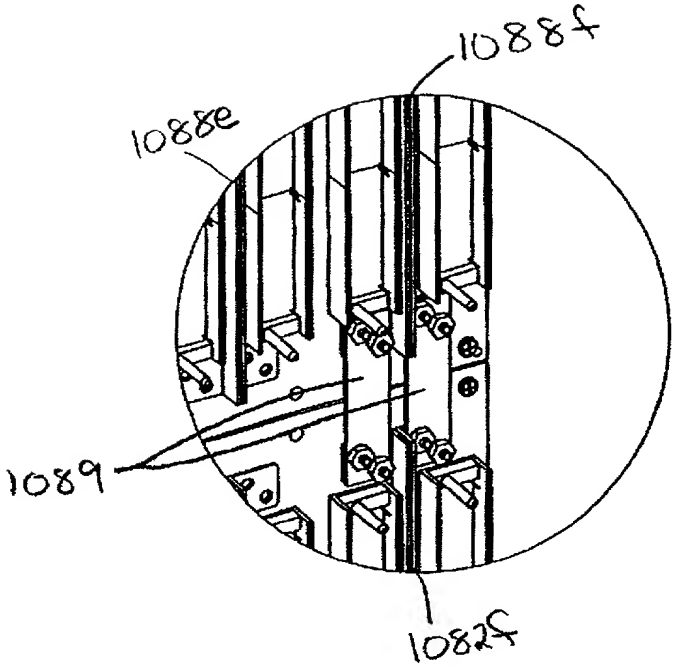
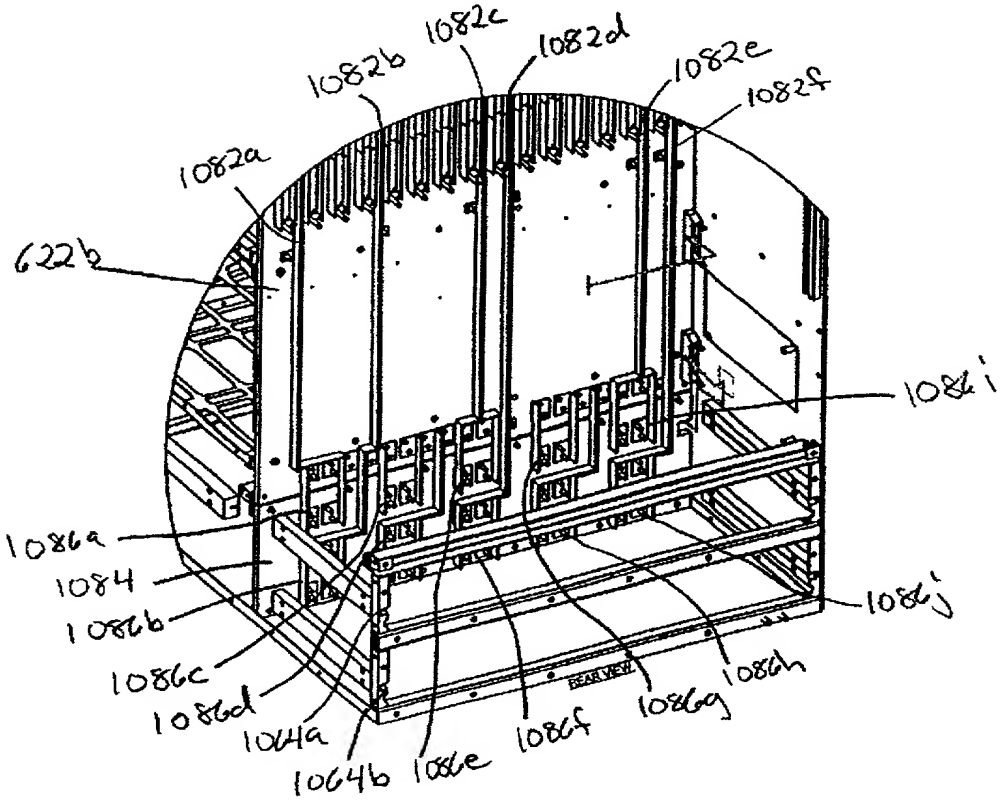


Fig. 73c



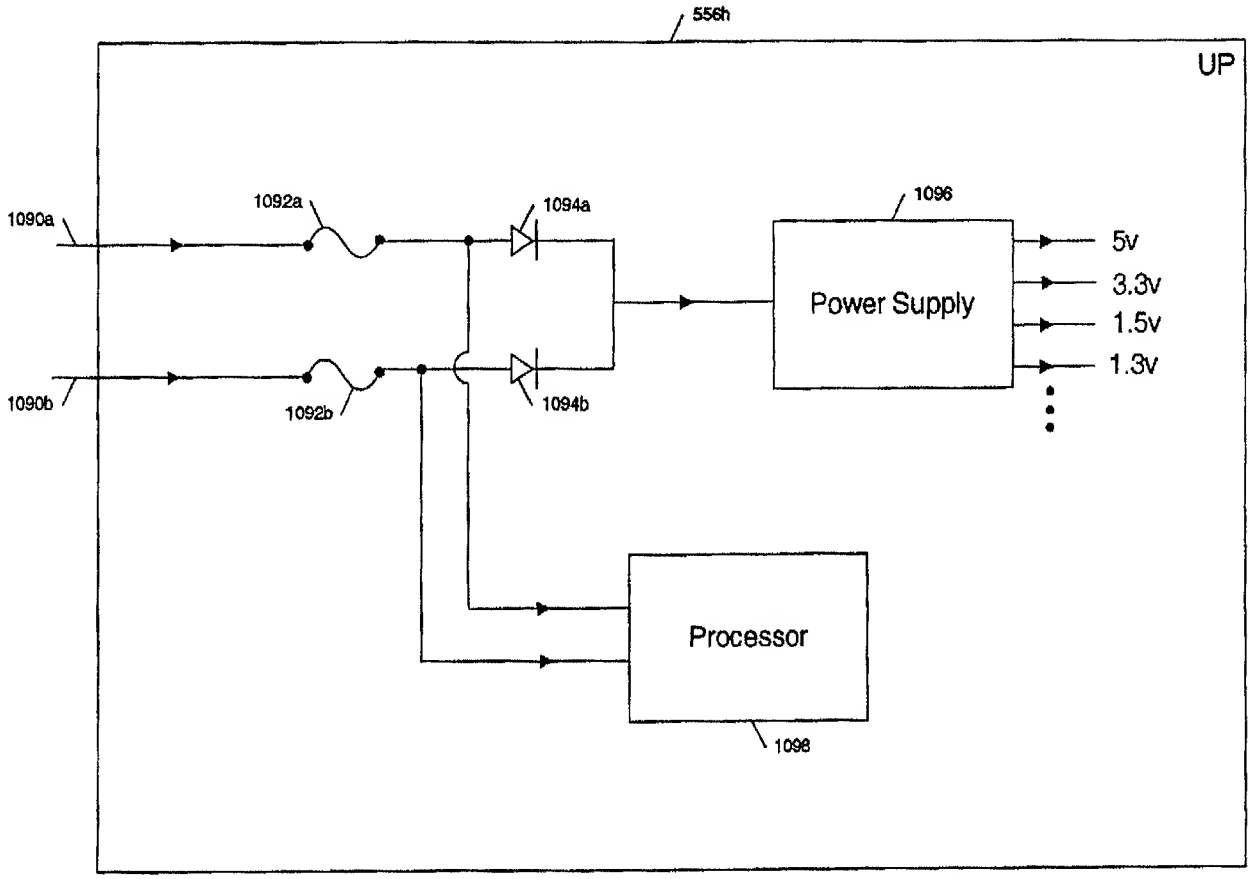

556h
UP
1090a
1092a
1094a
1096
Power Supply
5v
3.3v
1.5v
1.3v
1090b
1092b
1094b
Processor
1098

Fig. 74